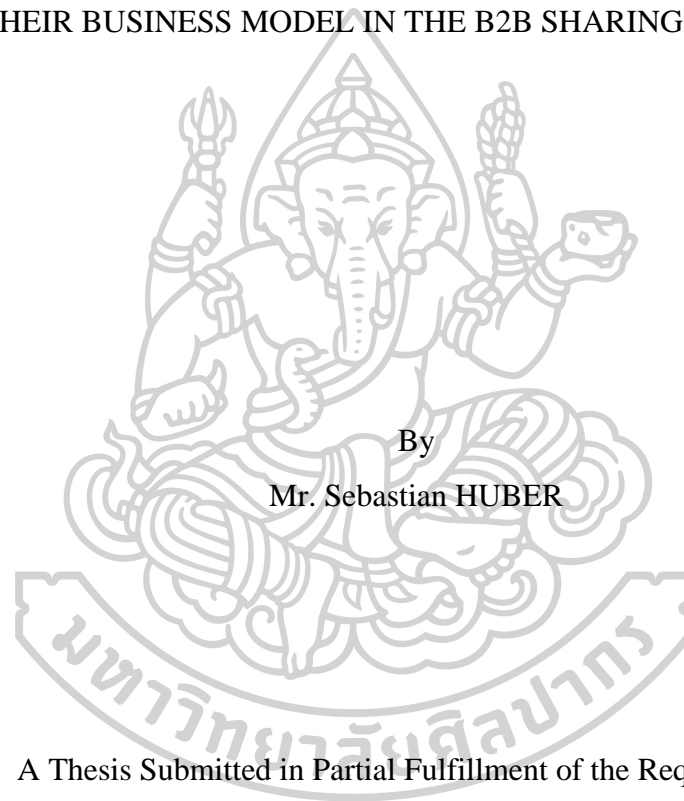THE SHIFT FROM OWNING TO SHARING – HOW SMES ADVANCE
THEIR BUSINESS MODEL IN THE B2B SHARING ECONOMY

By

Mr. Sebastian HUBER

A Thesis Submitted in Partial Fulfillment of the Requirements

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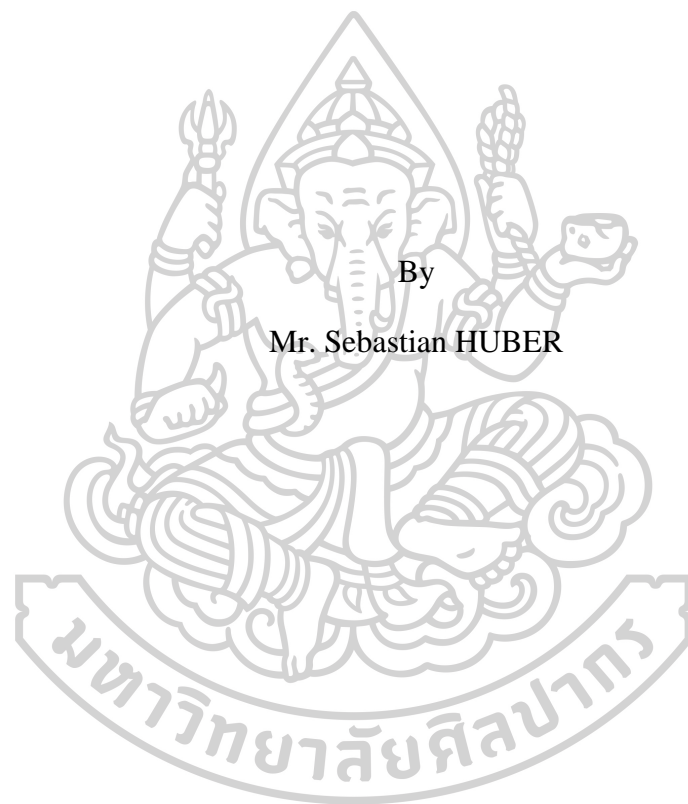
Silpakorn University

Academic Year 2023

THE SHIFT FROM OWNING TO SHARING – HOW SMES ADVANCE

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โดย

Mr.Sebastian Huber

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรบริหารธุรกิจดุษฎีบัณฑิต

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Title   The Shift from Owning to Sharing – how SMEs advance their
                 business model in the B2B sharing economy
By   Mr. Sebastian HUBER
Field of Study   DOCTOR OF BUSINESS ADMINISTRATION PROGRAMME
                 (INTERNATIONAL PROGRAMME)
Advisor   Assistant Professor Santidhorn Pooripakdee, Ph.D.
Co advisor   Professor Ingo Stolz, Ph.D.

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The sharing economy has witnessed tremendous growth, with much focus on sharing
transactions between consumers. However, the potentials of sharing between businesses have
been poorly researched so far. While some rationales for sharing between businesses along with
obstacles that inhibit such sharing transactions have been researched, it remains unclear, how
businesses manage the shift from ownership to sharing. This research therefore aimed to
determine what managerial actions are required for SMEs to advance their business model to
shift from owning to sharing. It addresses the neglected issue of B2B sharing, exhibiting
potentials for new business models and increased sustainability.

To understand the managerial actions along a shift from owning to sharing, this
research firstly aims to document the transformation of a company's business model from a
state of ownership to a state of sharing by comparing its business model before and after several
sharing transactions. Secondly, the type of managerial action needs to be understood; what are
managers doing along several iterations of sharing transactions to enable their organisation,
systems, and people to shift from a state of ownership to a state of sharing for which semi-
structured interviews were conducted with participating managers after each sharing
transaction. And finally, the timing of managerial action, i.e. a roadmap of this transformation,
needs to be recorded using time-stamped, unstructured data from exchanges in meetings and e-
mails between companies participating in the sharing transactions.

As a result, a process of transformation of a company's business model was jointly
developed and recorded, through an action-research-based project, collaborating with managers
of small and medium-sized enterprises (SMEs) based in Switzerland. To enable their
company's shift from ownership of resources to a sharing-enabled business model, managers
proceeded along three distinct phases: (1) strategically identifying suitable resources and
partners; (2) designing and implementing processes and technical infrastructure on a tactical
level; (3) developing their organisation towards integration of sharing in their daily operations.
And while many challenges remain to the sharing of resources between businesses, this research
clarifies the role of managers in transforming their business model towards the sharing
economy and offers tangible recommendations on the activities and competencies needed. The
findings enable managers to pragmatically transform their companies' business models towards
participation in the sharing economy. With strong benefits on sustainability and a significant
untapped potential in the use of existing resources, this research offers a tangible perspective
for more SMEs to participate in and benefit from the sharing economy.

Since transformational issues present an ever more frequent challenge and
opportunity in applied business management research, the employed action research
methodology – through its iterative nature – sheds light on similarly evolving roles and actions
of managers along the timeline of other transformational processes in business management.

ACKNOWLEDGEMENTS

Sebastian HUBER

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Chapter 1
Introduction - Sharing Economy

In only 10 years, the sharing economy has developed into a global phenomenon, affecting jobs, wealth and economic output on an individual, business, industry and country level (Rinne, 2019). Especially the use of otherwise unused resources has created new income opportunities and sustainable revenue alternatives for individuals around the world. AirBnB, Uber and other protagonists of the sharing economy have risen to impressive importance and are today very relevant players in many industries across the globe (Koetsier, 2015; Wallenstein & Shelat, 2017).

„The term 'sharing economy' is used to describe a variety of phenomena characterized by actors who share values and (access to) resources, such as information, time and objects. Often, the term sharing describes novel business models in which value creating processes integrate electronic devices and mobile technology" (Pick & Haase, 2015). The sharing economy redefines the way consumers make their choices and consume. Also known as collaborative consumption, it mostly appears as a peer-to-peer-based (P2P) activity of obtaining, giving, or sharing the access to goods and services, coordinated through community-based, often online services (Decrop et al., 2018; Hamari et al., 2016; Weiber & Lichter, 2019).

1.1 Research Problem

One question, however, remains largely unanswered: why is it that most sharing occurs between private individuals (peer-to-peer, P2P or consumer-to-consumer, C2C) and not between companies? Why would Mr. Smith let his home to strangers during his holiday or choose to drive people in his own private car during his leisure time while the bakery around the corner has its delivery vehicles parked in front of the shop, unused for most of the day? Why has the sharing economy not yet systematically expanded into the B2B sector, especially for Small and Medium-Sized Enterprises (SMEs)? Why do businesses abstain from sharing some of their costly resources to generate additional income or to balance their cost?

Relatively few cases on B2B sharing have been described so far, though specific sharing in some industries takes place already for a long time (Eschberger, 2020); for example at airlines that code-share their planes and seats with other airlines or the lending and renting of tooling and equipment in the construction industry. However, new opportunities arise from the use of digital technology and platforms such as logistics, production and medical equipment (Eschberger, 2020; Radjou, 2021). A further promising area could be the sharing of personnel with the support of digital technology, such as at the example of sales staff for Chinese FMCG brands (Zhang et al., 2019). While B2B Sharing is only occasionally researched and little implemented in practice, the benefits on macroeconomics, society and the world's ecosystem might potentially be much greater than today's C2C sharing economy (Radjou, 2021). With businesses contributing to economic activity next to private consumption and government, B2B sharing could yield substantial contributions to a sustainable future at the economic, societal and environmental level (Cho et al., 2013). With businesses inherently built on competition (Steininger et al., 2011), sharing does not come intuitively to managers; it requires a more fundamental change in the way to run a business, at the level of its business model (Choi et al., 2014).

1.2 Research Questions and Objectives

Taking a manager's perspective, this research investigated the dynamics of B2B sharing, namely what motivates or inhibits sharing, and developed new knowledge on the managerial action required for businesses to successfully shift from ownership to sharing for purposefully selected elements of their business model and thus benefit from the B2B sharing economy. This research aims to understand how SMEs advance their business model in the B2B sharing economy, acknowledging that a transformation of business model is required for SMEs to reap the benefits of the B2B sharing economy (Hong et al., 2014).
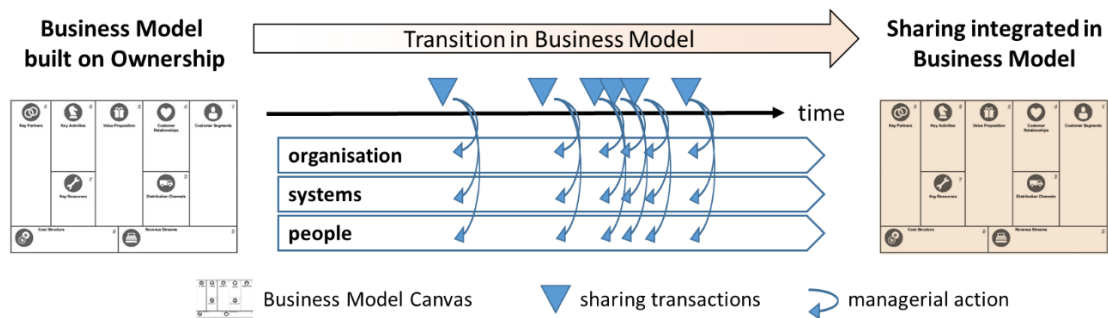
Figure 1 conceptual research framework (own illustration)

For doing so, three research objectives are comprised in the research framework (Figure 1):

- **Research Objective 1 on Business Model Transformation:** confirm that companies change their business model as they transition from ownership to sharing while identifying common characteristics of that transformation

- **Research Objective 2 on Managerial Action:** determine managerial action in the dimensions of organisation, systems and people which lead to successful sharing transactions and thus iteratively transform the company's business model from ownership to sharing,

- **Research Objective 3 on Transformation Roadmap:** establish a transformation roadmap that locates managerial action along a timeline from ownership to sharing to identify patterns across SMEs as they manage The Shift from Owning to Sharing.

1.3 Scope and Key Terms

Soltysova & Modrak (2020) stress that particularly SMEs benefit from B2B sharing which provides them access to resources they could otherwise not afford. Sharing adds to the competitiveness of SMEs like other formats of cooperation which are well established and researched (Choi et al., 2014). The efforts involved with sharing balance particularly well in asset-intensive industries with the value or cost of such assets (Grondys, 2019). Asset-intensive industries such as metal parts production and processing, mining, energy, aeronautic, and defense are characterised by an extensive asset base and require significant investments in non-digital resources to

operate their core business activities (Cesca & Novaes, 2012; Johnson et al., 2011; Sarno Severi, 2014). For successful sharing projects, a general openness for the sharing resources recognizing benefits in comparison to ownership is key (Gulati et al., 2012; Lefebvre et al., 2014; Quaddus & Hofmeyer, 2007; Thomason et al., 2013). This research therefore focuses on a purposively selected sample of SMEs from asset-intensive industries, all members of a research initiative on the B2B sharing economy (cf. Appendix A and Appendix B) that also comprises two facilitators of B2B sharing and two research institutions. The choice of sample positively influences the context for successful sharing projects (cf. chapter 2.2.2) especially by increasing trust between the participating companies, reducing complexity and search efforts by pragmatically focusing on likely sharing opportunities within the set of participating companies. The small and dedicated sample with SMEs motivated for sharing allows for the researcher to collect in-depth data from each case and interact frequently with managers from each company along the transformation process.

In the context of this research, Business-to-Business (B2B) is understood as an economic relationship between two independent legal entities as opposed to Consumer-to-Consumer (C2C) or Business-to-Consumer (B2C) which includes private individuals in the relationship and constitutes the majority of sharing economy transactions and platforms to date. The term Small and Medium-Sized Enterprises (SME) will be used along the Organisation for Economic Co-operation and Development (OECD, 2019) definition of companies with between 10 and 250 employees, above being classified as "large" and below as "micro" enterprises. While a consensus on the sharing economy itself is yet to be found (Muñoz & Cohen, 2017), sharing itself is of key interest to this research, henceforth understood as a collaborative activity between peers with temporary sacrifice of access to a resource (e.g. object, service or information) for the duration of a sharing transaction (Cho et al., 2013). Various definitions are used on what constitutes a business model (Choi et al., 2014), often cited to be the "*content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities*" (Amit & Zott, 2001). For better focus and means of comparison, this research specifically uses the structured Business Model Canvas (Osterwalder & Pigneur, 2010) as an instrument with its nine dimensions to describe and compare business models.

1.4 Project Outline

The project timeline connects with the research initiative on B2B sharing between SMEs (cf. Appendix B, Jüttner, Huber, & Wäfler, 2019) with Figure 2 providing an overview on the sequence of activities further outlined in chapter 3.5.
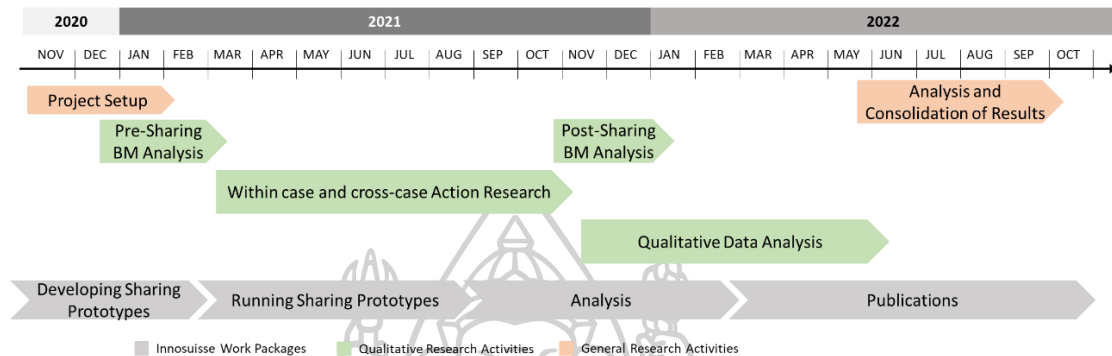
Figure 2 research project timeline (own illustration)

Qualitative research started with the analysis of pre-sharing business models from all participating SMEs in February 2021. SMEs were accompanied in their sharing transactions from prototype to transformation of their business models until November 2021 while qualitative data has been collected along every sharing transaction. The post-sharing analysis was conducted until June 2022, followed by compilation of results, their publication (Huber & Pooripakdee, 2022) and DBA thesis submission in early 2023.

1.5 Summary of Findings

Out of the nine building blocks of the Business Model Canvas (BMC), three areas of change were identified as being relevant: value proposition, partnerships, and cost structures. Participating SMEs compared their business models pre- and post-sharing and confirmed that their business model remains mostly unchanged, with only the three building blocks potentially evolving, emphasising that sharing constitutes only an auxiliary activity to their core business. The shift from owning to sharing leads companies (1) to rethink and potentially expand their value proposition on the market thanks to additional resources they may access, (2) to open up their business model to

new partnerships in the form of sharing cooperations, and (3) to deliver benefits on their cost structure by either monetising an idle resource (as provider to the sharing transaction) or using a resource from a partner at a lower cost than with ownership or market-based rent.

The data revealed that B2B sharing is considered by participating SMEs as only an addition to their core business activity and impacts their business models only to a limited extent. In this sample, the companies were sharing resources outside of their core activities – i.e. "resources" and "key activities" of their business models were only seldom mentioned to be affected by sharing. Opportunistically, participating companies employ sharing as a more cost-efficient alternative to the purchase and ownership of resources they rarely use. On the providing side of a resource, SMEs repeatedly mentioned that they did not aim to generate an additional margin or profit from sharing that resource but were content with monetising idle time of that resource, which to them was enough benefit and motivation to participate in a sharing transaction.

Identifying like-minded SMEs with whom sharing could be one form of collaboration amongst others underpins the importance of new and more substantial partnerships that add to participating companies' business models. Only relatively few comments were collected on the extension of a company's value proposition through sharing. Most of these showcase that making a partially idle resource available to others through sharing does create a new business activity or segment, but also stresses the fact that this activity will remain auxiliary to the company's core business.

All cases illustrated the need for managerial action on three domains of (1) systems (predominantly processes, technical infrastructure, and IT), (2) organisation, and (3) people. Actions in all three domains were apparent during the entire process of planning, implementing, and evaluating sharing transactions. When the timing of management action was cross-referenced with the three domains, a priority of management action became apparent for each phase: *before* a sharing transaction, management activity focused on investing time to identify potential resources for sharing (idle capacity or demand for resources) and to select potential partners for sharing. *During* the sharing transaction, the focus was on the design, adaptation, and implementation of processes and infrastructure in order to accommodate the sharing transaction. *After* one or several sharing transactions of the same resource, the focus

turned to enabling and developing the organisation to embrace sharing more permanently, empowering the teams and staff to actively integrate sharing in their day-to-day routines.

Sharing was almost equally mentioned to take place at the strategic, tactical, and operational level while managers assigned a more strategic importance to the first phase, moving to tactical priority during the sharing itself and handing further sharing transactions of the same resource to an operational level thereafter, correlating with the three phases. Consistently, managers stressed the strategic effort and management time required at the pre-sharing stage to identify suitable partners and resources for a first sharing transaction. In SMEs, undoubtedly, this task falls to the CEO or top management where the time investment in this first phase appears to be significant. For sharing transactions to yield the cost benefits on either side of the giving and receiving ends of a resource, a due process and supporting IT infrastructure are important, as several interviewees confirm. Even more importantly, if a resource is shared frequently between the same or different partners, a smooth administrative process appears to be much in focus. Once sharing has proven to be an attractive alternative to ownership, managers mentioned that they need to engage more members of their staff for themselves to seize future opportunities for sharing. This requires the respective roles in the organisation to become aware of sharing as an alternative to a resource purchase and to identify idle capacity as an opportunity to offer such a resource to a third party through sharing.

The focused transformation of selected aspects of their Business Model along with a three-phase process for managerial effort was found and described such that more SMEs could potentially participate from the B2B Sharing Economy.

Chapter 2
Literature Review and Theoretical Framework

Structuring the current body of knowledge on B2B sharing, chapter 2.1 explores why the mechanisms of the sharing economy offer substantial opportunities for business-to-business sharing and where they are applied. The currently known challenges and limits for B2B sharing will be outlined in chapter 2.2, namely to illustrate why companies and mangers struggle to embrace the principles of the sharing economy.

Chapter 2.3 illustrates how the opportunities and challenges lead to a need for transforming business models of companies who aim to benefit from B2B sharing, before chapter 2.4 covers business model transformation and managerial action required to enable the shift from owning to sharing. Once the transition effort understood, chapter 2.5 continues with the research gap and chapter 2.6 concludes with the research question and objectives.

2.1 Rationale for B2B Sharing

With exponential growth in past years, the sharing economy has disrupted many B2C industries and established itself as an alternative and relevant P2P business model (Schlagwein et al., 2020). eMarketer (2017) estimates over 85 million adult sharing users by 2021 in the United States alone, while PriceWaterhouseCoopers (2015) projects the industry's global revenue will grow to 335 bn USD in 2025, an estimate on C2C sharing exclusively. To date, businesses participate to sharing between individual consumers as operators of the sharing platforms where Koetsier (2015) already acknowledged that sharing economy start-ups raised more than 15 bn USD by 2015 and employ over 60.000 people. Important potential benefits on economics, business and the ecology with the sharing of resources between businesses remain yet untapped (Choi et al., 2014). Soltysova & Modrak (2020) in their literature review on sharing economy business models for SMEs summarise the motivation to engage in the sharing economy as it "*brings new working opportunities for individuals as well as for SMEs; it impacts positively on environment and profitability; and helps SMEs to ensure their company's survival*" (idem, p.9). They emphasize the urgency for SMEs to catch up

with the potentials of B2B sharing for creating competitive advantage and more sustainable business models (Hong et al., 2014; Soltysova & Modrak, 2020).

2.1.1 Access to Resources

In the resource-based view (RBV) of the firm – widely attributed to Barney (1991) – Prahalad & Hamel (1997), argue that precisely the resources owned by a company create sustainable competitive advantage. Eschberger (2020) therefore argues that a key driver for B2B sharing is for participating companies to get access to resources they could not afford to own, because they use them only infrequently. Wider research on the matter (Andersson & Sundermeier, 2019; Freiling, 2008; Markides & Williamson, 1996), has been acknowledging the need to expand the former understanding of resources beyond a company's boundaries to external organisations, taking an industry-wide and networked value chain view, especially for SMEs (Bretherton & Chaston, 2005). Independent of company size, one can note that in a number of industries, vertical integration is reducing and companies tend to specialize on their core competencies (c.f. vertical disintegration discussed by Langlois, 2001). In consequence, the opportunity for sharing as a means of access to resources outside of a company's core competence is growing.

While large organizations own more of the crucial resources for conducting their business, it is their size alongside leverage, tax position, growth, cash flow coverage and ownership concentration which determines what assets to lease or rent, and which to own (Ezzell & Vora, 2001). SMEs, however, are likely to share resources in asset-intensive industries (Vătămănescu & Alexandru, 2018) and with a correlation to the level of fixed assets as a share of total assets owned (Grondys, 2019). Which resources companies are more likely to share, remains confined to patchy evidence of select cases to date (Choi et al., 2014; Steiner & Huber, 2022) or a wide definition taken from C2C Sharing: "*high price, low availability, short period of use compared to the durability of products, and low frequency of use*" (Cho et al., 2013, p. 111). With SMEs constituting the majority of companies and jobs in most OECD countries (OECD, 2019), sharing might offer new opportunities for competitive advantage by providing access to otherwise unaffordable resources in a multitude of industries. There are documented cases where B2B sharing within an industry already happens in practice:

machinery and production capacity are shared in manufacturing and building industries (Eschberger, 2020), hospitals and local government share access or exchange expensive equipment (Muñoz & Cohen, 2018), trucks are locally shared for crowdshipping, forwarders share logistics capacities and empty storage space (Eschberger, 2020; Muñoz & Cohen, 2018), fast-moving consumer goods (FMCG) brand share sales personnel in cases of seasonal high / low workload (Zhang et al., 2019).

2.1.2 Sustainability

At the core of sharing, both C2C and B2B, ownership is substituted by access to resources, while at the same time infrequently used assets are used more frequently (Botsman & Rogers, 2010), resulting in "shared" use. A more efficient use of (existing) resources by sharing replaces additional, individual ownership creating economic sustainability at participating companies and the macroeconomic level (Daunorienė et al., 2015; Demary, 2014; Georgi et al., 2019). Saving cost in purchase, operation and financing of competitive business resources and infrastructure are the predominant impacts on economic sustainability from B2B sharing (Esselin & Falkenberg, 2019).

Ecologic sustainability is self-explanatory since B2B sharing avoids the purchase of new assets or resources, which systematically avoids overproduction and depletion of resources in the production of goods and services (Acquier et al., 2017). Especially goods with a significant CO_2 footprint (e.g. trucks or industrial machinery), contribute positively towards energy efficiency and clean air (Pisaniello, 2018). This even more so, since businesses are unlikely to generate compensating "overconsumption" in other domains. Ocicka & Wieteska (2017) were able to prove the positive energy saving impact of B2B sharing in the specific case of logistics services. With empty runs still generating a significant share of mileage in forwarding services, B2B sharing allows to reduce empty truck space, save storage cost, avoid detours and waiting time thus optimizing both human and technical resources (Eschberger, 2020). For sharing models where companies remain owner of their shared assets, they themselves often remain responsible for any ecologic footprint generated by these assets and thus are inherently motivated to aim for sustainable and reusable products (McDonough & Braungart, 2002).

The impact of B2B sharing on social sustainability remains inconclusive as work relationships potentially evolve and a net effect on society and the workforce depends strongly on the business model in application and thus remains difficult to predict (Eichhorst & Spermann, 2015). In conclusion, economic and ecologic sustainability are key drivers for B2B sharing while social sustainability from B2B sharing remains to be explored.

2.1.3 Reducing Total Cost of Ownership

Geissbauer et al. (2014), Ritter & Schanz (2019) along with Frenken & Schor (2017) identify reducing production costs, improving flexibly in responding to the needs and expectations of customers, faster liquidation of assets and including suppliers and customers in value creating processes as key motivators for B2B sharing. From the perspective of the business owning an underutilized asset, sharing that asset offers the potential of additional income or contributing margins from an otherwise idle resource (Choi et al., 2014). In either case, the benefit generated from sharing must compensate the effort required to share a resource thus reducing total cost of ownership from the resource owner. From the view of a company using a shared resource the cost of sharing must be lower than solely owning that resource, as discussed in chapter 2.1.1. While digital technology reduces the search and transaction cost in P2P sharing, it can potentially lower the effort required in B2B sharing and unlock network effects and scalability, where even marginal returns on each sharing transaction become attractive for both parties (Esselin & Falkenberg, 2019). The mere use of platforms has however not proven successful in B2B sharing (cf. chapter 2.2.3) which indicates the need for more strategic consideration of sharing activities at the level of participating companies' business models.

Traditionally, the use of a resource is associated with various costs, e.g. operational cost, consumables, maintenance, depletion in value (Cooper & Kaplan, 1988). This thinking might be challenged by new accounting methods such as Time-Driven Activity-Based Costing (TDABC) and Resource Consumption Accounting (RCA) where costs also occur for an idle resource (Tse & Gong, 2009), e.g. a melting furnace which cannot be shut down easily. Additional benefits may arise from a more intensive resource use, e.g. specialized staff that can continuously apply knowledge in

diverse company environments. In these cases, the time-limited surrender of ownership in itself would offer benefits that overcompensate the ownership cost, making systematic and thus business-model driven sharing of such resources in itself a competitive advantage.

2.1.4 Strategic Benefits

Sharing offers the strategic opportunity to evolve a company's business model in various ways: contacts created from sharing transactions may provide access to new value networks and markets for the company's existing products and services. Sharing of resources might offer new income opportunities for providing services along with the sharing transactions linked to the resources being shared (e.g. setup service for a machine being shared) along with creating new and more future-oriented jobs (Bonciu, 2016; Eichhorst & Spermann, 2015). Repeat sharing could create new business ecosystems and thus ensure long-term survival, sustainable competitive advantage and growth (Cho et al., 2013; Soltysova & Modrak, 2020). Due to the strategic nature of these opportunities, companies need to consider such choices at the level of their business model. Sharing even offers a novel view to benchmark any existing business model by challenging resource ownership against sharing thus identifying idle capacity. Potentially innovative, additional market offerings and activities might arise, if the resources needed for those were available through sharing as opposed to ownership.

To a more tactical extent, the sustainability benefits from sharing (cf. chapter 2.1.2) improve the corporate social responsibility (CSR) profile of a company involved in sharing by reducing its resource consumption and ecological footprint. Further CSR benefits and motivators include the commitment and willingness to contribute readily available resources to like-minded companies, an industry, region or the market in general which is positively perceived by stakeholders at large as "doing good" and "giving back" (Esselin & Falkenberg, 2019). Reciprocally, a company engaged in sharing may benefit from the partnerships and transactions within the sharing community in the CSR spirit of "giving back" (cf. chapter 2.2.4) .

2.1.5 Macroeconomic Perspective and Government Policy

Society and governments face the depletion of planet earth's resources in the post-liberal market society of the 21st century (Foord, 2014) for which sharing offers a more sustainable alternative to ownership and consumption (Daunorienė et al., 2015; Demary, 2014; Georgi et al., 2019; Hamari et al., 2016). Some authors argue, that there is simply no alternative to sharing if the world wishes to avoid serious social and economic issues arising from the likely lack of resources in the near future (Botsman & Rogers, 2010). That rationale for P2P sharing also applies to B2B sharing (cf. chapter 2.1.2). Addressing businesses and SMEs especially, governments at the national, regional and local level have an interest to gather support in society to enable and support B2B sharing in order to reduce resource consumption and ecologic footprint of economic activity while raising their jurisdiction's long-term competitiveness (Hong et al., 2014).

Clusters of P2P sharing that cause a shift in consumer's mind-set have proven an economic driver for new jobs, income opportunities, new markets and beyond-cluster competitiveness (Eichhorst & Spermann, 2015). Also in B2B sharing, there might be new strategic and tactical monetary and non-monetary opportunities for existing businesses engaging in sharing (cf. chapters 2.1.3 and 2.1.4) or even new opportunities for novel, networked-based and digitally enabled business models and roles within B2B sharing ecosystems (e.g. intermediaries). With peers supporting each other, B2B sharing particularly benefits SMEs which are both vital for the competitiveness and dynamism of a region (OECD, 2019) and thus in focus of government support programs (idem). Esselin & Falkenberg (2019) emphasize the need for regulation and government support to reduce risk and uncertainty for SMEs sharing when they substitute ownership with B2B sharing of resources.

2.2 Obstacles for B2B Sharing

At the heart of market economics, competitiveness is created by rivalry, innovation and differentiation (Porter, 1997; Steininger et al., 2011). Sharing resources with other businesses therefore does not come naturally to companies and is rarely built into business models (Choi et al., 2014; Daunorienė et al., 2015). Much of the strategic and operational mindset of companies today inhibits sharing: from the core question of what resources are suitable for sharing (cf. chapter 2.2.1), which preconditions must be set before sharing can occur (cf. chapter 2.2.2), how digital platforms can support B2B sharing (cf. chapter 2.2.3) and how to scale sharing in the long-run, taking network effects into account (cf. chapter 2.2.4).

2.2.1 Identifying Suitable Resources

Business have to balance the contribution margin from sharing a resource with the cost of sharing which may include various efforts in identifying and selecting a suitable sharing partner, executing the transaction and – more fundamentally – the change in their business model (cf. chapter 2.3). The higher the investment and operational cost of a resource, the more likely companies are willing to share it (Grondys, 2019; Vătămănescu & Alexandru, 2018). The willingness to share a resource and subsequently adapt one's business model varies because each business model is unique and sharing a particular resource impacts a company's business model at varying degrees (Choi et al., 2014; Soltysova & Modrak, 2020). As in C2C sharing, the type and context of the sharing transaction (cf. chapter 2.2.2) also affect what resources businesses are willing to share. Grondys (2019) categorizes machinery and equipment, stocks of raw materials, materials, and intermediate goods as well as ancillary and buffer stocks as suitable for B2B sharing with varying degree.

In an effort to narrow the scope of resources along common criteria, ten senior experts from SMEs in Switzerland with previous B2B sharing experience (cf. Table 1) were interrogated in the process of a research initiative on B2B sharing (cf. Appendix B). First evidence confirms a wide range of potentially suitable resources for sharing. The experts offered tangible suggestions from their industry practice from the sharing of staff with volatile workload to the temporary use of production capacity and machine hours along with pooling of deliveries, sharing of expertise, lending of tools, pooling

of purchase orders up to joint trade show participation, and more. At the same time, the discussions indicated that the type of resource and the characteristics of a sharing project are strongly interdependent, i.e. not every resource requires the same type of sharing project and partner (cf. chapter 2.2.2) and vice versa. Already for C2C, reciprocity as a key feature of sharing and its resources (i.e. peers are both contributing own resources for sharing while using other peer's resources instead of ownership) is controversially discussed (Acquier et al., 2017; Belk, 2014; Netter et al., 2019).

For B2B sharing this appears even less of a requirement with sharing participants comfortable in predominantly either using or offering a resource for sharing (Huber et al., 2022; Zhang et al., 2019).

Table 1 Expert Interviews (own illustration)

Expert	Company	Role	Interview Date
DS *	Company P	Head of Production	11 May 2020
TS *	Company T	CEO	13 May 2020
TT *	Company R	CEO	13 May 2020
KS *	Company E	Head of Operations	15 May 2020
WB *	Company K	Head of Production	20 May 2020
BK	Company A**	Project Manager	04 June 2020
MG	Company S	Head of Production	05 June 2020
AK	Company B **	CEO	08 June 2020
GO	Company F	Managing Partner	10 June 2020
RF	Company M	CEO	09 July 2020
* permanent members of the research initiative			
** members of Facilitator V, a collaborative member of the research initiative			

2.2.2 Prerequisites and Preconditions

A wide range of factors and preconditions affect a company's propensity to participate in a sharing project or the sharing economy at large (Hong et al., 2014; Soltysova & Modrak, 2020). The team of the research initiative (cf. Appendix B) identified 54 core literature references to converge along six clusters in describing precondition success factors for B2B sharing with Figure 3 providing an overview thereof.

The following keywords were queried in German and English with a focus on business and organizational psychology in the Psyndex, Science Direct, google scholar and ResearchGate databases: sharing, preconditions, prerequisites, requirements, determinants, antecedents, success factors, collaboration, coopetition, competition, B2B, SME, sharing economy, risk factors, cooperation motives, cooperation models. Non-experimental, quantitative and qualitative research was considered along with questionnaires, meta studies, case studies and reviews.

2.2.2.1 Characteristics of Sharing Resources

The resources themselves must be sharable, i.e. they should be owned by one party and can be made accessible to at least one other party (Breidbach & Brodie, 2017; Grondys, 2019). For making them available, the resources can be idle (Choi et al., 2014) or sleeping (Esselin & Falkenberg, 2019). Choi et al. (2014) more generally point out excess availability of a resource while Grondys (2019) argues that in addition to availability; a willingness to share and seeing the opportunity for sharing are needed, on either an organizational or a cooperation level. Choi et al. (2014) further discuss a high price, generally low availability, short usage time and low usage frequency in comparison with durability of products as features in resources that positively affect their suitability for sharing.

Cluster 1 – characteristics of sharing resources	Cluster 4 – external environment
- Resources are available which can be jointly used - Possibilities and capabilities to systematically identify suitable resources and synergies	- Access to sharing - Interdependency of market actors - Industry awareness of inter-organizational sharing - Legal framework and infrastructure - Geographic proximity of sharing partners - Number of potential sharing partners

Cluster 2 – company internal preconditions for sharing	Cluster 5 – communication
- Knowledge about the possibility of sharing resources - Motivational drivers to participate in sharing - Explicit and strategic debate on the expectations on sharing and of sharing partners - Company culture and influence on cooperation activities - Commitment, intent and effort towards sharing - Knowledge on the industry and market - Previous sharing experience	- Open communication on the subject matter - Agreement on the intensity of sharing cooperation / procedural aspects - Explicit and strategic debate on the expectations on sharing and of sharing partners - Perceived reciprocal benefits from sharing - well-established business model for sharing - Business processes aligned for sharing - Strategic framework for customer development - Roadmap for value co-creation - Trust and confidence - Reciprocal signaling of commitment towards sharing - Reliability - Previous interaction between said SMEs - Perceived similarities in values between sharing partners

Cluster 3 – managerial and individual characteristics
- Management attitude towards sharing - Competencies on handling issues arising from sharing projects

Cluster 6 – management of sharing projects
- Role of intermediary (platform operator) - Features of the platform (functionality, simplicity, security, efficiency)

Figure 3 clusters of preconditions for B2B sharing (literature overview, own illustration)

2.2.2.2 Company Internal Preconditions for Sharing

Almost obvious, numerous authors underline the importance that SMEs must recognize the benefit of participating in the sharing of resources in comparison to ownership (Gulati et al., 2012; Lefebvre et al., 2014; Quaddus & Hofmeyer, 2007; Thomason et al., 2013). More broadly, Kraus et al. (2017), Sellitto et al. (2018) and Xu & Wang (2002) discuss the need for an SME to recognize value in cooperating with other companies for long-term sustainable advantages. Financial benefits from sharing are a further aspect that clearly influence SMEs' willingness to share (Antikainen et al., 2018). This can materialize in the form of a need to use materials und resources more efficiently (Botsman, 2014), a general target of efficiency (Brettel et al., 2014), cost reduction (Esselin & Falkenberg, 2019), increasing its own productivity (Barni et al., 2018), following an exploitation strategy (Breidbach & Brodie, 2017) or monetary rewards from sharing (Choi et al., 2014). Barni et al. (2018) even argue that financial factor is the main driver to participate in B2B sharing projects.

Botsman & Rogers (2010) argue that companies need to be aware of the option to share a resource while Arnaut et al. (2018) highlight that SMEs need to know about the market need for a resource they can offer to share. Kumar et al. (2018) more broadly require SMEs to understand the business, market, and processes of their likely B2B sharing counterparts. Previous sharing experience (de Araujo & Franco, 2017; Dorn et al., 2016; Sellitto et al., 2018), a company's strategic commitment to sharing (Morris et al., 2007; Pinasti et al., 2016) as well as an organizational culture for cooperation and sharing (Ceptureanu et al., 2018; Resende et al., 2018; Thomason et al., 2013) are further cited as internal preconditions.

2.2.2.3 Managerial and Individual Characteristics

Several authors stress the importance of leadership's attitude towards sharing especially in an SME context where individual leaders command a larger impact onto such strategic decisions (Della Corte & Aria, 2016; Kraus et al., 2017; Pinasti et al., 2016; Yazici, 2013; Zakrzewska-Bielawska, 2014). De Araujo & Franco (2017) and Thomason et al., (2013) stress the need for personal trust into the capabilities of a potential sharing partner while Brettel et al. (2014) argue a generally trustful attitude towards third parties is required, especially when a potential sharing partner originates from likely competitive industries. Kelly et al. (2002) and Resende et al. (2018) add a view onto managerial competencies in executing a sharing partnership or project which affects the cooperation and relationship between the SMEs. Esselin & Falkenberg (2019) offer some suggestions on how to overcome such barriers of uncertainty in the capabilities of others.

2.2.2.4 External Environment

The degree of interdependence between SMEs is considered a strong driver of sharing (Gnyawali & Ryan Charleton, 2018; Schwerk, 2000). The more one SME depends on access to a resource of the other and vice versa, the more both parties are likely to enter and sustain a (sharing or cooperative) relationship. Geographic proximity creates favorable conditions towards sharing (Gulati et al., 2012; Hong et al., 2014; Knoben & Oerlemans, 2006; Lindström & Polsa, 2016; Rathi et al., 2014) and thus acts as mediating aspect onto other preconditions, e.g. the building of trust,

information exchange and others. Similarly, the legal framework (Arnaut et al., 2018; de Araujo & Franco, 2017; Sellitto et al., 2018; Zakrzewska-Bielawska, 2014), along with legal infrastructure (Choi et al., 2014) and specific regulations on sharing (Grondys, 2019) influence a SMEs openness to participate in sharing projects. Antikainen et al. (2018) argue that awareness within an industry positively affects sharing while Botsman & Rogers (2010) claim that SMEs need to be specifically aware of sharing as a solution to limited resource access. Axelrod & Hamilton (1981) and Schwerk (2000) discuss the number of sharing partners involved in a project as being a determinant for an SME to participate – negatively correlated with increasing number of partners.

2.2.2.5 Communication on the Sharing Matter and Relationship

In order to recognize the potential of sharing versus ownership (cf. cluster 1), SMEs need to openly communicate and exchange information on the matter of sharing (Arnold et al., 2019; Chowdhury, 2012; Grondys, 2019; Hong et al., 2014; Resende et al., 2018; Zakrzewska-Bielawska, 2014). Kumar et al. (2018) argue that a strategic framework for customer development is needed, while Choi et al. (2014) require SMEs to establish business processes for sharing on the level of their business model. Barni et al. (2018) specify these processes further as (1) an adoption roadmap for sharing and (2) interoperability between SMEs at industrial level. Breidbach & Brodie (2017) qualify such a roadmap with a need to focus on value creation for the SMEs involved. A reciprocal advantage from sharing is paramount in SMEs' willingness to engage in sharing (Arnold et al., 2019; Bengtsson & Raza-Ullah, 2016; Morris et al., 2007; Pant & Yu, 2019; Pinasti et al., 2016; Thomason et al., 2013). Especially for sustained advantages from sharing and long-term sharing partnerships, strategic alignment of the partners in required (Zakrzewska-Bielawska, 2014).

With a focus on the relationship, the open signaling of commitment to sharing and partnership (Dorn et al., 2016; Prabhudesai & Prasad, 2017; Yazici, 2013) is highlighted with Choi et al. (2014) adding consideration of reliability. Trust in cooperative behavior between sharing partners affects the long-term commitment (Ceptureanu et al., 2018; Hong et al., 2014; Morris et al., 2007; Pinasti et al., 2016) while Brettel et al. (2014) emphasize the need for trust in personal relationships of

managers on either side of the SME sharing partnerships. Earlier interactions improve relationships between partners and thus positively affect sharing participation (Gulati et al., 2012; ter Huurne et al., 2017; Yazici, 2013). A perceived similarity between partners, e.g. being part of the same in- or outgroup, also positively affect sharing participation (Gulati et al., 2012; Ingram & Qingyuan Yue, 2008). Arnold et al. (2019), Grondys (2019 and Klimas (2016) more broadly add that a shared value system based on trust and respect in the cultures of participating SMEs can be considered beneficial for sharing partnerships.

2.2.2.6 Management of Sharing Projects

As often, the operational implementation of managerial action affects the success of strategic objectives, such as B2B sharing in SMEs. Specifically, Weiber & Lichter (2019) highlight the required capability of coordinating sharing activities in multi-sided market scenarios with Antikainen et al. (2018), Breidbach & Brodie (2017), Choi et al. (2014), Grondys (2019) and Ocicka & Wieteska (2017) indicating various ICT-related organizational capabilities as particularly relevant. Comparable to P2P sharing, Kumar et al. (2018) and Laczko et al. (2019) attribute a key role to the intermediary of B2B sharing projects as (1) coordinator of stakeholders and their activities as well as (2) service enabler. If a platform is used to orchestrate sharing activities between SMEs, some key functions are considered relevant determinants for sharing participation: directness and simplicity (Botsman, 2014), efficient communication (Brettel et al., 2014), convenience of use (Esselin & Falkenberg, 2019), internet-based transactional environments (Arnaut et al., 2018; Liu & Brody, 2016) as well as security (Grondys, 2019). Antikainen et al. (2018) further hint to the need for business model experimentation methods in sharing projects.

Each cluster and most of the preconditions identified therein refer to the level of organization, systems or people of an organization, substantiating the need of business model transformation to enable B2B sharing (Antikainen et al., 2018; Cho et al., 2013; Weiber & Lichter, 2019). In comparison to C2C sharing, the analysis of preconditions in B2B sharing also highlights the need for companies to consider the effort involved with sharing (search cost, access cost, multi-homing cost, building trust,

reducing potentials of fraud etc.) on a transactional and strategic level (cf. chapters 2.1.4 and 2.3).

It is worth highlighting, that cluster 4 points less to a change in business models and managerial efforts but calls on governments and legislative bodies to set an environment favourable to enable, foster, support and initiate sharing between SMEs which aligns with benefits to the region and economy at large (cf. chapter 2.1.5).

2.2.3 Digital Platforms

Business models of today's C2C sharing economy transfer significant parts of the sharing transaction to a platform, e.g. setting terms and conditions, complaint handling and damage claims (Lichter & Weiber, 2018). Soltysova & Modrak (2020) consider digital technology from platform-mediated business models at various degrees to drive access to and share resources. Muñoz & Cohen, (2018) contemplate that technology for digital platforms namely for sharing marketplaces is readily available and affordable allowing to swiftly connect existing resources to the needs from a large community once the need for sharing is identified.

However, current research and first practical evidence from unsuccessful B2B sharing platforms indicate that a mere transfer of digital, platform-based business models from P2P or C2C sharing concepts does not respond sufficiently to operational needs of resource sharing for companies (Esselin & Falkenberg, 2019; Friederici et al., 2020; Laczko et al., 2019). Because SMEs often only employ basic digital skills and infrastructure to run their business, B2B sharing platforms have often failed to attract SMEs (Cohen, 2016; Muñoz & Cohen, 2018). To interface with or transfer significant parts of their business transactions to a platform constitutes an effort that outweighs the benefits of participating to the sharing platform. Traditional, social sharing between individuals without the technical support of a digital platform, on the other hand, is generally limited to the private or closely social environment outside industry and business (Lichter & Weiber, 2018).

B2B sharing does not systematically lead to the use of a digital platform. Contrarily, B2B sharing platforms have struggled to create the necessary momentum. Therefore, B2B sharing must first consider its impact on the business model of participating companies before the choice of transaction and necessary intermediaries

and technologies can be answered (Choi et al., 2014; Muñoz & Cohen, 2018). Addressing the prerequisites (cf. chapter 2.2.2) merely on a digital platform appears a daunting challenge and might be a reason why many B2B sharing platforms failed (Choi et al., 2014; Täuscher & Kietzmann, 2017).

2.2.4 Scalability and Network Effects

The C2C sharing economy heavily relies on network effects, critical mass, and scalability of digital platforms allowing for positive cross-sided market dynamics with the more participants offering a resources, the more attractive the sharing for those in need of said resource and vice versa (Kumar et al., 2018). In B2B sharing, such network effects and commitment to a specific sharing platform (cf. chapter 2.2.3) seem less apparent (Grondys, 2019; Muñoz & Cohen, 2018). There is a need to more openly evaluate options on technological infrastructure needed and available in the SME environment that could sufficiently enable inter-organisational communication and cooperation along business processes between two sharing partners not necessarily employing a platform. A well-defined sharing transaction, suitably embedded in a business model with only low frequency and few, well-known partners may offer more benefits to a business than frequent sharing with a large community through an anonymous platform.

The shift from owning to sharing affects businesses on a micro level, individually on their business model, while sharing in C2C requires efforts on an industry level, activating sharing users on a multi-sided market to generate the scale and network effect required for sharing to develop between consumers. In comparison, B2B sharing seems more likely to pragmatically launch in controlled, individual projects between ready partners but might be not reach the typical network potentials for self-reinforcing same-side and cross-side growths and scalability in the long-run (Perren & Kozinets, 2018; Pînzaru et al., 2018). Businesses sacrificing ownership for sharing of a resource face more risk of hold-up and lock-in to the sharing partner or community, which is why governance in the sharing business models is of much greater consideration (Grondys, 2019).

The "critical mass" phenomenon, which strongly affects the success of multi-sided, platform-based market models is considered a mandatory feature of

sharing economy business models (Engelhardt et al., 2017). This needs to be balanced against the technological infrastructure needed and available in an SME environment that could sufficiently enable inter-organisational communication and cooperation along business processes between two sharing partners.

Reciprocity, i.e. true peer-to-peer sharing where each peer of the community engages in both offering and using resources, is already debated in C2C sharing where many sharing projects start off as true P2P models and later transition to more of a platform-to-consumer or business-to-consumer business model (Muñoz & Cohen, 2018). Even more so in B2B sharing, due to the variety in business models of participating companies, reciprocity is neither a requirement for successful sharing nor an obstacle that would keep SMEs from sharing (Choi et al., 2014; Soltysova & Modrak, 2020).

2.3 The Need for Business Model Transformation

While sharing has been a part of human activities for long, technological advancements moved sharing from private and personal networks to online and offline exchanges among strangers (Netter et al., 2019). Businesses in the 20th century, however, are typically built on competitive advantages and benefit most if they outplay their rivals (Porter, 1997; Steininger et al., 2011). Instead of sharing, businesses would rather trade with one another for a profit. In search for more sustainable alternative ways of running businesses (cf. chapter 2.1.2), recent discourse calls for novel business models based on collaboration, co-creation and co-opetition for competitive advantage (Cho et al., 2013; Ritala et al., 2014) where sharing fits more naturally, thus challenging traditional views on competition. As these changes affect the core business rationale and "recipe" of a company, they require a transformation of the business model (Casadesus-Masanell & Ricart, 2010) with the aim to describe the key success factors for the functioning of sharing projects with regards to their business benefits and sustainability (Barni et al., 2018; Choi et al., 2014).

While business models describe the static "*content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities* " (Amit & Zott, 2001), a company's strategy namely aims at changing elements of its business model (Casadesus-Masanell & Ricart, 2010). Strategy

formulation is namely the expression of a future state – a future version of a company's business model – along with measures to achieve that change. As outlined above (cf. chapter 2.1), sharing presents precisely such an opportunity for strategic change and thus is inherently connected to evolving a company's business model.

B2B sharing is often associated with research on the sharing economy as such (Weiber & Lichter, 2019), or subsumed in questions of strategy such as the consequences of sharing on marketing (Eckhardt et al., 2019). Muñoz & Cohen (2018) underline the need for a holistic view on sharing and illustrate B2B sharing as one characteristic of a business model. Specific and well-established cases of sharing in some industries (farmers sharing machinery, airlines code-sharing flights, etc.) offer optimism that B2B sharing can be transferred to other industries (Radjou, 2021) but consequently require sharing to be adopted at the business model, with existing businesses transforming their business model. Sharing in itself is not generic (like a networked business model) but affects specific resources and markets, thus it impacts business models in various aspects and degrees (Perren & Kozinets, 2018). Existing conceptual and empiric research on C2C, B2C and C2B sharing faces some criticism of sustainability of the emerging business models (Acquier et al., 2017; Firnkorn & Müller, 2011) which makes it even more important for B2B sharing to embrace sharing from a business model viewpoint to provide a holistic rationale.

Authors such as Vătămănescu & Alexandru (2018) have already been calling for a "paradigm shift" from C2C sharing towards an "emerging industrial sharing economy", i.e. the B2B sharing economy. Perren & Kozinets (2018) along with Eckhardt et al. (2019) suggest a conceptualization of the sharing economy as a socioeconomic business model along a continuum. Kumar et al. (2018) and Demary (2014) emphasize the diversity of sharing business models along with Perren & Kozinets (2018) and (Eckhardt et al., 2019, p. 7) who state: "*thus, our continuum recognizes the diversity in this domain and acknowledges that some firms are more archetypal of the sharing economy than others*".

Much like C2C sharing impacts the consumer's consumption model, market offerings and revenue streams, B2B sharing offers the potential to transform not only a single business but an industry or region towards more sustainable resources use, additional income opportunities and more (cf. chapter 2.1). A change of business model

infers a more strategic and permanent shift (Casadesus-Masanell & Ricart, 2010) which sharing platforms for B2B have so far failed to meet. SMEs have refrained from sharing since the platform offerings have stopped short of the strategic business-model dimension incurred with sharing resources and merely offer sharing as an operational choice (Cohen, 2016).

Further discussions from both academia and management practice on B2B sharing currently evolve on the application of industrial mash-ups for B2B sharing, spearheaded by advisory Ernst & Young and Harvard Business School (EY, 2016). They argue that "industrial mash-ups" features three elements that specifically support value creation in B2B sharing business models: (1) the sharing of industrial resources through automatisation, (2) the virtualisation of resources as a basis for creating new services and (3) the integration of services from partners into one's own market offerings (idem). Their "open-ended" structure (Liu & Brody, 2016) and flexibility to participate concurrently in several structures (Vătămănescu & Alexandru, 2018) appears to overlap significantly with B2B sharing. However, industrial mash-ups generally focus on innovation projects between large organisations along strongly digitalized interfaces (Liu & Brody, 2016) which have been identified as significant hurdles for SMEs to participate in sharing (cf. chapter 2.2.3) who are the most likely beneficiaries of sharing. Furthermore, literature on industrial mash-ups does not offer guidance on the transformation required for organisations to participate in them: (Vătămănescu & Alexandru, 2018, p. 280) "*industrial mash-ups evolve vertiginously from an emerging crazy idea towards a built-in reality*", leave open how the transformation actually occurs.

2.4 Managing The Shift from Owning to Sharing

Actors in the C2C sharing economy can participate opportunistically, because their own effort and time investment into participating to a sharing activity and platform is often not considered and calculated as a cost (Bratianu, 2018; Pisaniello, 2018). For companies, however, the shift from owning to sharing implies a more strategic change since it will change causalities within their business logic, e.g. resource use, cost, revenue streams, partnerships, activities, even customer relationships (cf. Business Model Canvas by Osterwalder & Pigneur, 2010 and chapter 2.3). Giving up on sole

ownership impacts a business' processes, systems, people, company culture and more, which requires well-directed effort and managerial action on a range of dimensions to ensure an overall favourable outcome.

For B2B sharing to occur repeatedly and unlock the long-term potentials, given the up-front investment and transformation effort required for giving up sole ownership, participating business must include sharing in their core operations as an integral part of their business model (Hong et al., 2014). They must manage the transitional effort and process that leads an organisation from resource ownership to resource sharing (Antikainen et al., 2018). Brettel et al. (2014) emphasize positive effects of sharing on the innovation capabilities of SMEs, namely in supporting digital transformation towards industry 4.0 again with managerial efforts needed to implement these changes on the level of business models.

For managers and even extended stakeholder groups of a company it is imperative to understand and actively design the shift from owning to sharing for their business and take all necessary measures to reap the benefits in a new sharing-enabled business model. While the object of sharing (resources being offered or used, cf. chapter 2.1.1), type of sharing model (co-ownership, reciprocal use, role of intermediary / platform) and subsequent impact on a participating company's business model will likely vary, there is always a transition effort and managerial action required to enable the shift from owning to sharing

In summary, for B2B sharing to deliver on its benefits (cf. chapter 2.1) and overcome its obstacles (cf. chapter 2.2), businesses must aim for frequent and permanent sharing because occasional sharing does not balance well with the efforts involved in giving up ownership (Huber et al., 2022). While we acknowledge the need for a change in business model (cf. chapter 2.3) to reap the benefits from sharing and overcome its obstacles, there is a lack of knowledge on the actual managerial action required to ensure tangible strategic benefits from the shift from owning to sharing. Managers must understand how to evolve their business model from ownership to sharing, namely which elements of their business model will be affected by the shift. Managers further need to understand what actions to take on the level of their organisation, people and systems to facilitate the transition and institutionalise sharing as a new, permanent element within their business model.

2.5 Research Gap

While some knowledge exists on the potential benefits and motivations for companies and especially SMEs to share resources (cf. chapter 2.1), there is a lack of knowledge on how these companies actually manage the shift from owning assets to sharing them. Existing evidence from sharing initiatives suggests that there are multiple obstacles for companies in identifying (a) the relevant assets and (b) suitable partners for their sharing initiatives (Gulati et al., 2012; Hong et al., 2014; Lefebvre et al., 2014; Quaddus & Hofmeyer, 2007; Thomason et al., 2013; Xu & Wang, 2002). Much focus lies on the platform-mediated sharing transaction and the operators involved (Eisenmann, 2008; Engelhardt et al., 2017; Esselin & Falkenberg, 2019) while the impact on the business models of companies participating in B2B sharing is less understood (Perren & Kozinets, 2018). Choi et al. (2014) and Antikainen et al. (2018) stress the need for a shift in companies' business model but fail to explain the transitional effort and transformation process that leads an organisation from resource ownership to resource sharing.

Much B2B sharing research focuses on the actors involved in the sharing transaction (Choi et al., 2014; Huber et al., 2022; Muñoz & Cohen, 2018; Pick & Haase, 2015), looking at businesses in their entirety. It fails to recognise the need for specific managerial action required on the organisation, systems and people within companies that engage in sharing transactions. If companies must change their business model in order to engage in B2B sharing, managerial action must support a transition from a state of ownership to a state of sharing over time (Huber & Pooripakdee, 2022). Understanding the managerial action required for The Shift from Owning to Sharing and to develop tangible recommendations for management practice, these actions must be understood in their sequence along a transitional process over time that leads from ownership to sharing.

2.6 Research Question and Conceptual Framework

Accepting the lack of knowledge in the transitional process from resource ownership to sharing, managers need to take strategic and operational action to enable the shift and subsequent change of business model (cf. chapter 2.4). This research therefore investigated how leaders advance the business model of their company in a

strategic effort from owning to sharing – henceforth called "The Shift from Owning to Sharing". In the context of SMEs in asset-intensive industries who are the largest beneficiaries from sharing, it aims to understand the managerial action required to move from a business model based on ownership to a new business model that embraces sharing. It generates understanding about how sharing affects systems, organisation and human beings; and determines managerial action required on these dimensions with tangible recommendations for managers to enable their companies to shift from owning to sharing. Figure 4 outlines the overall conceptual research framework. The following chapters 2.6.1, 2.6.2 and 2.6.3 illustrate in three research objectives how each aspect to the research question was conceptualised followed by their operationalisation in the research methodology (cf. Chapter 3).
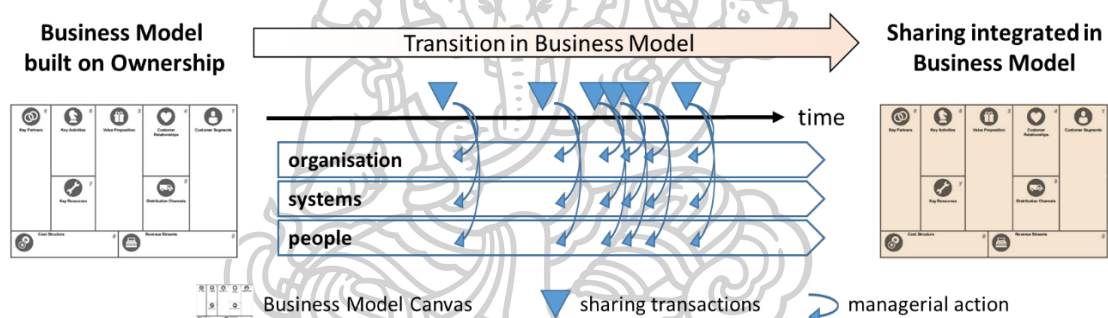
Figure 4 conceptual research framework (own illustration)

In summary, this research aims to **determine what managerial action is required for SMEs to advance their business model to shift from owning to sharing**.

2.6.1 Research Objective 1: Business Model Transformation

As outlined in chapter 2.3, SMEs must transform their business model to benefit from sharing. While the evolution and transformation of business models has been explored in general (Casadesus-Masanell & Ricart, 2010), this research clarifies the specific transformation needed for The Shift from Owning to Sharing. It aims to confirm that companies actually change their business model as they engage more frequently in sharing. Furthermore, it investigated if there are common characteristics

of that business model transformation, be it (a) on what aspects of the business are changing or (b) how they change. Also, it needs to confirm the stability of the transformation, i.e. that the new sharing-enabled business model will endure, and companies achieve an actual shift without opportunistically returning to ownership.

For reaching this objective, a set of companies were accompanied in their shift from owning to sharing (cf. Figure 5) as they increasingly engaged in sharing transactions with others, documenting their business model both before the transformation (i.e. a state of resource ownership) and after (i.e. a state of some degree of sharing). Comparing the two business models for each company indicates the areas where the transformation occurred and shows common characteristics between the transformation efforts of participating companies, if there are any.
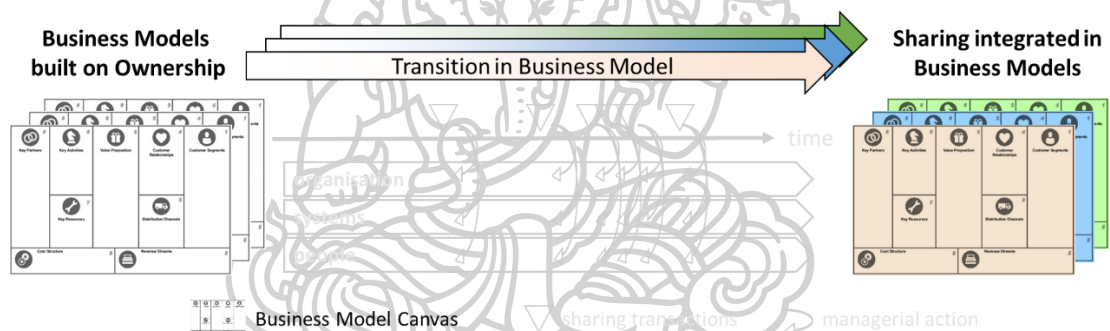
Figure 5 business model transformation within the conceptual research framework (own illustration)

2.6.2 Research Objective 2: Managerial Action

Every sharing transaction between the companies participating in the research was accompanied with a well-structured action research cycle (cf. chapter 3.1), interacting with participating managers on either side of the sharing transaction to document, evaluate and improve the actions they take to prepare for, initiate, facilitate and implement sharing. Qualitative data was recorded from all exchanges between sharing companies by attending to joint meetings, participating in negotiations, and recording e-mail conversations. Each sharing transaction was recorded in a structured database containing the following information (cf. Appendix H):

- contracting parties (company name, industry and location, person in charge, offering or receiving a resource)

- resource(s) shared

- duration of sharing (start and end dates)

- contractual conditions (e.g. transportation, insurance, legal agreements).
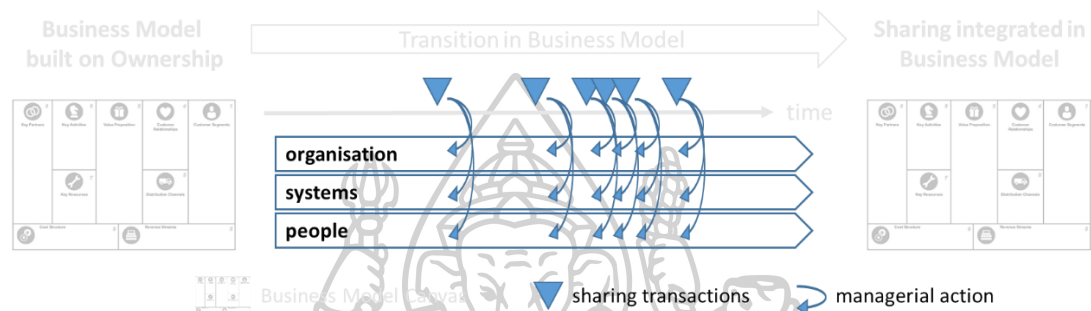
Figure 6 managerial action within the conceptual research framework (own illustration)

When the shared resource returned to the providing company after a successful sharing transaction, managerial action for the duration of the sharing transaction was recorded in semi-structured narrative interviews with each sharing party using three structuring domains: the organisation, systems and people of each participating company (cf. Appendix F). The questions collected the actions taken by the manager along with his or her evaluation on the effectiveness of these actions identifying potential room for improvement towards future sharing transactions (cf. chapter 3.3.3, interview guideline in Appendix C). The data collected from the interviews was transcribed and coded in two cycles (cf. Appendix G) to compare managerial action between sharing transactions and link them back to the structured data from the database for analysis.

Analysing the collected qualitative data allowed to answer the research question on several levels: recurring and positively rated managerial action will be distinctive from rare and unsuccessful action. The data illustrates in which dimension of organisation, systems and people, these actions were taken. Also, an evolution of managerial action between earlier and later sharing transactions of the same company was detected by comparing interview answers from one cycle to the next (cf. chapter

2.6.3). Managerial action was further evaluated against observations from the preparatory phase of sharing and data in the database characterising the specific sharing transaction. This offered insights to how managerial action differs to address challenges from different sharing objectives, preconditions or context (cf. chapter 2.2).

Analysing multiple sharing transactions in these action research cycles and engaging with decision makers at each company, the research identified recurring successful patterns both in the sequence of sharing transactions at the same company and congruent or divergent managerial action between different companies (cf. Figure 6). In summary, managerial action was documented and evaluated with each sharing transaction, so that best practices emerged from the learning curve allowing to refine and confirm findings in later cycles over the course of the research project.

2.6.3 Research Objective 3: Transformation Roadmap

The transformation from a business model of ownership to a sharing-enabled business model happens over time (cf. the Inter-corporate Sharing Economy Framework suggested by Cho et al. (2013, p. 117)). Companies start with a first sharing project prototype to more frequent sharing transaction of the same or an increasing number of diverse resources, ultimately transforming their business model, they "*evaluate each step of the sharing business and (...) draw the improvement plan and reflect the plan on the existing sharing business and the new sharing business* [model]" (Cho et al., 2013, p. 114). The cause and effects in this sequence of events need to be understood.

For doing so, and for each company in this research effort, the sequence of sharing transactions and related managerial action was time-stamped using the database of all the transactions (cf. chapter 2.6.2). The starting date of each company's first sharing transaction – i.e. the moment when for the first time a resource was used from or provided to another sharing participant – was considered the "moment zero" (t=0). From this starting date, all managerial actions of that company were recorded on a timeline (Figure 7), both backwards (for preparatory steps) and forwards (for all managerial action that happened thereafter). Once allocated on the timeline, managerial action was discerned for their relevance in transforming the company's business model from owning to sharing, thus extracting the relevant actions and their sequence in

transforming the business model. In comparing the different company cases between one another on a normed timeline, common or divergent patterns emerged on how these companies transformed their business model. These findings were reflected against the actual evolution of business models (cf. chapter 2.6.1) and the summary characteristics of sharing transactions the respective company engaged in (cf. database from chapter 2.6.2). For example, a company might engage in providing the same specific resource in increasingly frequent sharing transactions with an increasing number of different sharing partners. Its business model transforms respectively so that specific resource and managerial action is geared towards optimising the cost attached to more frequent sharing of the same resource. The transformation roadmap in this specific case could potentially differ from another company that engages mainly in using a wide range of resources from other sharing participants.
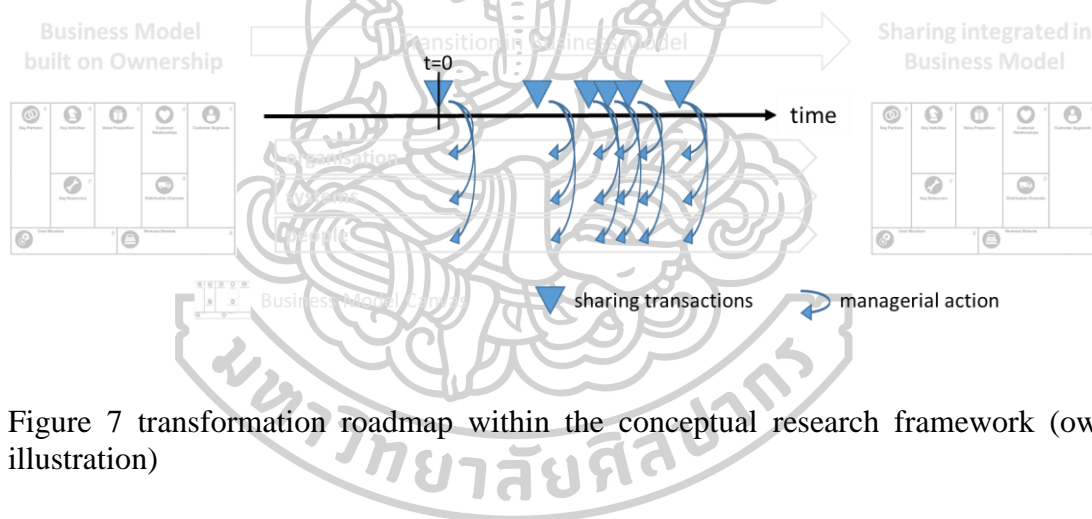
Figure 7 transformation roadmap within the conceptual research framework (own illustration)

Since the transformation roadmap will place the sharing transactions and related managerial action in sequence, it will allow to understand how one affects the other and how over time the act of sharing along with managerial action transforms participating companies' business models from ownership to sharing. Alongside the validation of the newly adopted, sharing-enabled business model (cf. chapter 3.3.2), the sequence of managerial action along the transformation roadmap was validated in a closing workshop with the participating managers, both for their specific company case and generalised, common findings that emerge from cross-case analysis (cf. Appendix J).

Chapter 3
Research Design and Methodology

Given the exploratory nature of the research question, a qualitative research method was applied. Qualitative action research interacts with and closely documents specific cases of sharing transactions between companies, members of the aforementioned research initiative (cf. Appendix B). This qualitative approach allowed to focus on in-depth exploration and analysis of the unknown territory of The Shift from Owning to Sharing with a focused set of SMEs from asset-intensive industries.

3.1 Action Research

Dating back to the mid-20th century, Action Research combines activities "in action" with research by acting in the field while with generating new knowledge or theory about these actions (Eden & Ackermann, 2018). It has gained traction in combination with qualitative research methods given the rich data collected to understand the change and transformation of organizations (Dick, 2000) which aligns nicely with the objectives of this research. Action Research is a form of applied research that specifically generates theory from practice (Eden & Ackermann, 2018) being "research in action" more than research on or about action (Coughlan & Coghlan, 2002). Action Research creates new knowledge through a collaborative, dialectic process between researchers and practitioners (Cassell et al., 2009). The research is not limited to observing events but actively interacts with the system and data sources to solve a given, practical problem while creating new research insights for the academic body of knowledge (Gummesson, 2000).

Transformation and change happen simultaneously with researching and understanding it by applying a cyclical process in sequences of activities and critical reflection. Later cycles refine methods, data and interpretation of earlier cycles, creating a spiralling, iterative process where the depth of understanding on a subject matter subsequently increases (Dick, 2000). According to Coughlan & Coghlan (2002, p. 233), the research process requires several repetitive cycles of the same sequential steps, namely (1) the collection of data, (2) data analysis, (3) action planning, (4) implementation and (5) evaluation. Given the iterative nature of sharing transactions

leading to a transformation of the business model, the cyclical yet structured method of Action Research suits the research objectives. The participate character where both the researcher and data providers from the object of research are participating to the process of generating new knowledge is particularly suitable in a case where first-hand insights along the transformation process in The Shift from Owning to Sharing is to be collected. This being said, a reflective, critical evaluation of the process itself and the results generated from each cycle is imperative (Dick, 2000).

Action Research does not impose specific data collection methods and leaves open a wide range of options often using case study research in a combination of artefacts, documents, surveys, interviews, focus groups, discussions, observations, group work and performance monitoring (Hales et al., 2006). Coughlan & Coghlan (2002) stress the importance of selecting the data collection methods with the stakeholders of the research project since they themselves constitute elements of intervention which need to align with everyone's expectations so to avoid aversion or apprehension from participants. To ensure validity of any Action Research Dick (2000) stresses that (a) more than one cycle must be completed with planned action and critical reflection thereafter (b) more than one data source must be used in each cycle and (c) learnings from former cycles must influence action planning of later cycles, trying to refute or confirm earlier findings. It is furthermore critical to minimize bias by the researcher that might arise from his role both as an observer and participant to the project (Wilson, 2004). In summary, Action Research specifically matches with answering how to Manage the Shift from Owning to Sharing since the transformation process is clearly defined and a specific solution on how that shift can be managed must be explored, developed and documented (Jüttner, Huber, Furrer, et al., 2019; Reason & Bradbury, 2001).

3.2 Key Informants

The research initiative provided direct access to the managers and leaders of five selected SMEs and four facilitators of B2B sharing (Table 2). The Swiss Federal Office for Statistics accounts a total of 59'377 SMEs in 2020, of which ca. 17'132 companies[1] are attributed to the secondary, i.e. industrial, sector (BfS, 2022). This sample of SMEs was specifically recruited from different segments in asset-intensive industries in Switzerland with a preconditional interest in participating in B2B sharing transactions. At 0.03% (5 out of 17'132 industrial SMEs in Switzerland), this qualitative research sample does not wish to claim representational quantitative results; it aims, however, to address and understand in more detail the diverse interests and challenges of Swiss SMEs in asset-intensive industries when engaging in B2B sharing transactions.

Table 2 List of Key Informants (own illustration)

Expert	Company	Job Title	Role in Project
DS	Company P	Head of Production	Company case #1
TS	Company T	CEO	Company case #2
TT	Company R	CEO	Company case #3
CS	Company E	Head of Division	Company case #4
WB	Company K	Head of Production	Company case #5
MS	Facilitator V	President	Facilitator #1
SC	Facilitator K	Founder	Facilitator #2
DF	Facilitator W	Corporate Communication	Facilitator #3
CK	Facilitator C	CEO	Facilitator #4

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[1] Due to data protection provisions, this data is only partially published and therefore approximated.

The SME managers engaged themselves in preparing, initiating, executing, and evaluating B2B sharing transactions predominantly with SMEs from the same sample. It is however possible that along the project, additional SMEs will join for specific sharing transactions or a general interest in the research initiative altogether (cf. expert interviews on resources suitable for sharing, in chapter 2.2.1, Table 1). Facilitators are supporting the research in various functions expanding the reach to more SMEs willing to engage in sharing transactions (Facilitator W and Facilitator V) or providing platform-mediated services to facilitate sharing transactions (Facilitator C and Facilitator KFacilitator K). Next to publicly available information on the participating companies, these experts constituted the main source of information. Data was collected through various interactions with these informants who are at the same time the key stakeholders in sharing projects and sharing transactions between participating SMEs. From one sharing transaction, two or more sources of information emerge on at least one giving and one receiving party (cf. Figure 8).

3.3 Instruments and Data Collection

Since Action Research systematically enforces a constant and cyclical dialog between in-practice action and research (Coghlan & Shani, 2020) and suggests to use diverse research methods and data sources. In answering to each of its objectives, the research included data collection from observation, interviews and workshops which were fully and appropriately embedded into the day-to-day managerial actions of participating companies (cf. Table 1).

Particular attention was given to ensure that the sharing transactions were carefully documented, and the actual sharing was recorded such as it occurred in the real world. This included primary and secondary data recordings along each company's business model canvas, data-based observation of each sharing transaction, and semi-structured interviews to reflect the observations and especially evaluate managerial action for each transaction (cf. chapter 3.3.3).

Table 3 Overview of Methods and Data Sources for each Research Objective (own illustration)

Research objective	Method	Data Source
# 1: business model transformation	compare business model canvas of each participating company before and after the sharing transformation	Online company information (website, annual reports, press statements), internal company documents, online workshop with senior manager
	validate findings with all managers who participated in sharing transactions	e-mail questionnaire, collected feedbacks and comparison
# 2: managerial action	Coded semi-structured interviews following each sharing transaction with providing and receiving SME	Semi-structured interviews, coding system and coding
#3: transformation roadmap	Time-stamped recoding of managerial activity along each sharing transaction by attending each exchange, meeting, recording e-mail conversations	Meeting minutes, e-mail exchanges

3.3.1 Industry Case Studies

The B2B sharing research initiative (cf. Appendix B) provides the framework and context for this research process, which will benefit from preliminary data and findings in earlier work packages. It will specifically be conditioned by a set of sharing prototypes where industry partners of the research initiative define the resource(s) to be shared along with a common understanding for the preconditions leading to defined sharing projects (cf. Appendix D). In other words, the subjects of the research process about the shift from owning to sharing were twofold (cf. Figure 8): (1) sharing projects evolved from prototype status to implementation. Within those sharing projects, (2) two or more SMEs each engaged in sharing activities and by doing so transitioned their own business model from the owning to sharing of resources. The number of sharing projects as well as the number of projects each SME engaged in, is left open since it is not considered to affect the transition from owning to sharing as such.

While the sharing projects were considered given, this research focused on the SMEs and their business model, aiming to understand what it takes for these SMEs to transition, how they need to manage the shift from owning to sharing for themselves. By doing so, better understanding on the transition and managerial action emerged. These findings were also compiled into a guideline for managers in future sharing projects – be it the very same SMEs that continue engaging in further sharing projects or new, additional prospective SMEs in future sharing projects that wish to reap the benefits from sharing for themselves and their business model.
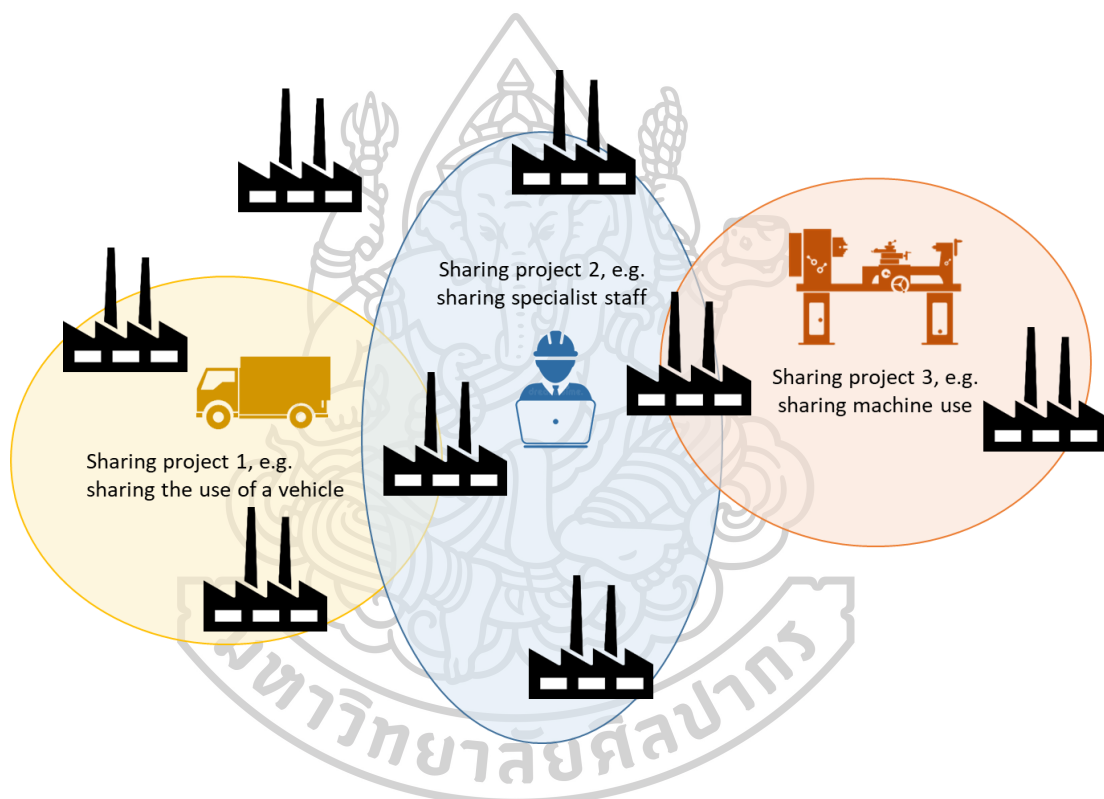
Figure 8 sharing projects and participating SMEs (own illustration)

Due to the transformatory nature of the research objectives , this research employed several cycles of action research (Reason & Bradbury, 2001) to understand the shift which leads SMEs from ownership to sharing of resources on the level of their business model using semi-structured interviews following each sharing cycle (cf. chapter 3.3.3 and Appendix C). From initial discussions with industry experts, one anticipated that such a transformation on an organizations' business model evolves along several stages of maturity (cf. Figure 9 and the Inter-corporate Sharing Economy Framework suggested by Cho et al. (2013, p. 117)).
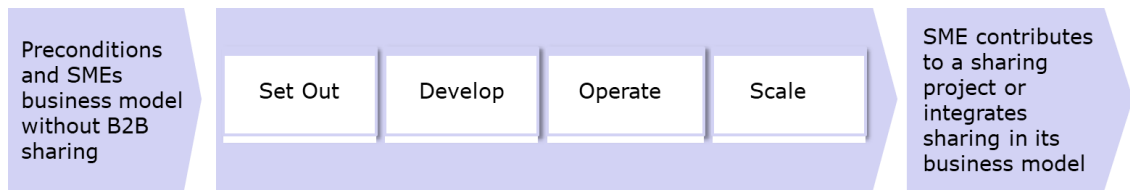
Figure 9 SME transformation roadmap from owning to sharing (cf. Jüttner, Wäfler & Huber, 2019)

Given the explorative nature of this aspect, the co-creative action research method was considered suitable and ran through several cycles of implementation and reflection between both researchers and industry experts, i.e. the participating SMEs within their sharing projects along several sharing transactions. One cycle of one sharing transaction typically included (1) the collection of data, (2) data analysis, (3) action planning, (4) implementation and (5) evaluation (Reason & Bradbury, 2001). While the problem itself – i.e. understanding the change from owning to sharing – is well understood, the nature of that transition needs to be explored, which fits well with the conditions outlined for action research (Jüttner, Huber, Furrer, et al., 2019; Kocher et al., 2011). Furthermore, the research initiative's setup with actual SMEs and industry experts available and willing to directly test and implement research findings alongside researchers to collect and analyze data while reflecting the findings in each cycle further supports the argument for action research.

3.3.2 Business Model Analysis

In order to understand the overall scope of business model transformation along with specifics on what aspects of a business model do evolve along The Shift from Owning to Sharing, business models before and after the shift were compared using Osterwalder & Pigneur's (2010) Business Model Canvas (BMC). BMC has received widespread acclaim to allow a succinct description and analysis of a company's "*content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities*" (Amit & Zott, 2001, p. 493). For each company participating in the Shift from Owning to Sharing, the BMC was documented prior to its first sharing transaction using two steps for data collection and analysis along BMC's nine building blocks:

1. Using publicly available sources (website, trade registry entries, media reports, etc.) as well as internal documents (financial reports, strategy papers, etc.) within maximum a two-year record, a first draft of the BMC will be completed by the researcher;

2. During a 1-hour interactive workshop with the company owner, senior manager or representative, the draft BMC will then be validated, completed and detailed further.

After completion of The Shift from Owning to Sharing with the company acknowledging that sharing has become an integral and recurring part in their business activity, the formerly confirmed BMC were revisited in another collaborative workshop with the industry partner to identify areas of change, where the business model has evolved thanks to the company's participation to sharing transactions (cf. Appendix I). This workshop identified (a) which of the nine BMC building blocks were affected, (b) how significant that transformation was for the business model overall and (c) what specifically changed in each of the affected blocks.

This two-step analysis and comparison answers research objective 1 (cf. chapter 2.6.1) to understand the scope, characteristic and impact of The Shift from Owning to Sharing on participating companies' business model.

3.3.3 Semi-Structured Interviews

To collect data on the managerial action from each sharing transaction, a semi-structured interview was conducted with the responsible manager on either end of the sharing transaction, i.e. the providing SME and the receiving SME. This questionnaire (cf. Appendix C) was structured along the foundational concepts of the research framework and previous research on B2B sharing transactions (Huber et al., 2022): it asked for managerial action on the level of (a) the organisation, (b) systems and (c) people. It further investigated the timing of such action - i.e. before, during and after a transaction - and then asked for evaluation of these actions with regards to their impact on the success of the completed sharing transaction. Next to these more structured and closed questions, it also provided opportunity to explore and extrapolate the insights from one sharing transaction into future iterations, such as what managerial actions to repeat, which to change or remove and what additional measure to add.

3.4 Data Analysis

3.4.1 Within-Case Analysis

Collaboratively working with SMEs in Action Research cycles along every sharing transaction within each case, the researcher:

(1) collected data about managerial action,

(2) analysed that data to,

(3) collaboratively developed alternative management actions,

(4) accompanied the implementation of the actions selected and

(5) evaluated the impact of managerial action for the sharing transaction.

By doing so, each cycle generated new insights and documented input for the next cycle and next sharing transaction. For each case, at least two cycles were completed and analysed. To deepen the knowledge and accelerate the findings with each cycle and sharing transaction, the focus remained on within-case analysis. Each sharing transaction initialized at least two cycles with (a) the provider and (b) user of the shared resource, which by consequence generated enough cycles for in-depth analysis for each company case while also offering a wide body of insights across the cases.

During the Action Research process focusing on managerial action, cross-case analysis was omitted to allow for more progressive developments between cases and avoid early spill-over from one case to the other which could unnecessarily lead to more homogenous results in this exploratory research. As a result, each case offered a range of results on what managerial action is required to enable The Shift from Owning to Sharing in answer of research objective 2 (cf. chapter 2.6.2).

3.4.2 Cross-Case Analysis

For each case study, the sharing transaction and managerial actions were time-stamped to understand their sequence and time-distance in relation to the initiation of a sharing transaction. Each company launched its sharing activities at a different time with each sharing transaction likely initiated and executed at different points in time. Also, the duration of sharing as such (duration of foreign resource possession) varied from one resource to another and one sharing transaction to another. By counting from day zero when sharing was initiated, each cycle and matching managerial action from each case was tracked and then compared across the other cases and cycles to understand if there was a common partner in the managerial action and their sequence along the timeline of The Shift from Owning to Sharing. With the researcher closely collaborating with the companies, the data on each sharing transaction was collected systematically while the Action Research of each case provided a structure to record managerial action in each cycle.

For documenting the transformation along a timeline, only the managerial actions taken were recoded (i.e. step 1 from the cycle outlined in chapter 3.4.1) from each case and each transaction. This cross-case analysis allowed to understand the transformational process, namely if there were common patterns of managerial action over the time of a sequence of sharing transaction constituting The Shift from Owning to Sharing in response of research objective 3 (cf. chapter 2.6.3).

3.5 Project Timeline and Project Steps

The execution of the research design outlined above followed a stringent timeline supported by the research initiative (cf. Appendix B, Jüttner, Huber, & Wäfler, 2019) in which this particular research was fully embedded, benefiting from direct access to a set of Swiss SMEs in asset-intensive industries ready and willing to engage in sharing. Figure 10 provides an overview on the sequence of activities, Appendix D offers more details.
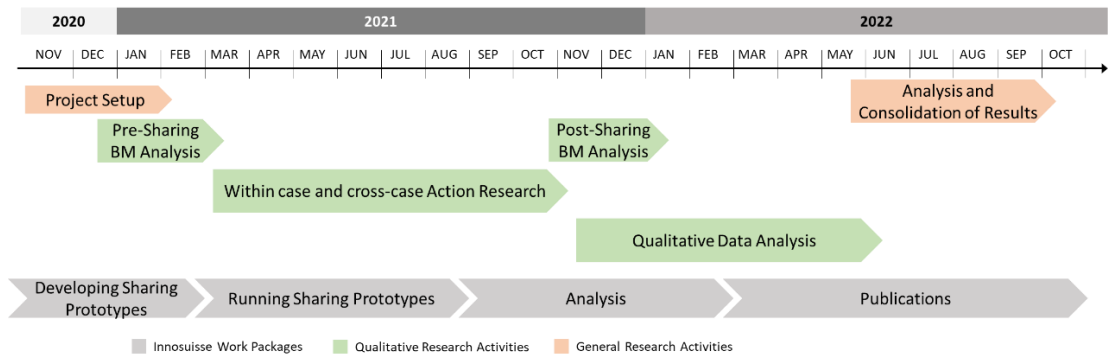
Figure 10 research project timeline (own illustration)

After aligning all stakeholders on the project activities still in 2020, the qualitative research started with analysis of pre-sharing business models from all participating SMEs in March 2021 (cf. chapter 3.3.2). Action Research then accompanied the SMEs in their sharing transactions from prototype to transformation of their business models from March to November 2021. Concurrently, qualitative data from within case and cross-case analysis was collected in cycles with every sharing transaction (cf. chapters 3.4.1 and 3.4.2). Based on the qualitative data collected and the post-sharing business model analysis, the post-sharing expert interviews were conducted towards the end of 2021 followed by transcription, coding, analysis and publication of results later in 2022.

3.6 Implementation

From March 2020 to March 2022, an industry-led research initiative investigated B2B sharing transactions with a set of ten Swiss SMEs in asset-intensive industries (Table 2). The initiative analysed what preconditions needed to be met for companies to share a resource (both in terms of the resource characteristics and the conditions for companies to participate) and developed a process for managers when initiating, executing, and evaluating B2B sharing transactions (Huber et al., 2022).

Along the initiative, four cases of sharing projects were implemented and documented in two cycles of action research between March and November 2021: marketing expertise, 3D measurement, delivery service and personnel (cf. Table 4). With the exception of one case, where the receiving company did not participate in the

research, seven transformations from owning to sharing were recorded (two companies for each case).

Table 4 Sharing transactions in the Shift from Owning to Sharing (own illustration)

Shared resource	Provider company	Receiving company	Case description
3D Measurement	Company T	Company P	For measuring a technical part, Company T shares their 3D measurement device with Company P several times per month.
Delivery service	Company R	Company T	Excess loading capacity on the delivery van of Company R is provided to Company T when needed for delivery of their finished products to customers in close-by areas.
Marketing expertise	Company S	Company C	Company S temporarily provides its marketing expertise to consult on the digital marketing communication of Company C.
Personnel	Company P	- (undisclosed)	In times of excess capacity, Company P provides select members of its production workforce to a partner company where these skills and capacity are needed.

All sharing transactions were carefully documented, and the actual sharing was recorded as it occurred in the real world. This included data-based observation of each sharing transaction (Appendix H), followed by a semi-structured interview to reflect the observations and to evaluate managerial action for each transaction (Appendix F).

3.6.1 Recorded Timelines of Sharing Projects

A total of three sharing projects were accompanied by a researcher who timed and recorded all interactions between the two parties (Appendix H). They included data

from observation, interviews, and workshops, which were fully and appropriately embedded into the day-to-day managerial actions of participating companies as a constant and cyclical dialog between in-practice action and research (Coghlan & Shani, 2020).

The researchers jointly engaged and facilitated the interactions between the two parties interested and willing to share resources. At times, the researchers ensured the follow-though of the intended activities by actively scheduling workshops or phone calls, by reminding either party of deadlines for information exchange or requesting documentation of duly completed activities. The activities were then aligned with t=0 being the day when the sharing transaction actually happened (Figure 11).

Case 1 - 3D Measurement

	11.12.2020	18.02.2021	16.03.2021	12.04.2021	17.05.2021	26.05.2021	26.05.2021	31.05.2021	01.06.2021	10.06.2021	11.06.2021	14.06.2021
	Workshop	Workshop	on site visit	Workshop	E-Mail	on site visit	E-Mail	E-Mail	E-Mail	E-Mail	E-Mail	Sharing Start
t1	-185	-116	-90	-63	-28	-19	-19	-14	-13	-4	-3	0

Case 2 - Marketing Expertise

	11.12.2020	18.02.2021	26.02.2021	12.03.2021	22.03.2021	31.03.2021
	Workshop	Workshop	E-Mail	on site visit	on site visit	Workshop
t2	-110	-41	-33	-19	-9	0

Case 3 - Staff Exchange

	11.12.2020	18.02.2021	12.04.2021	23.04.2021	26.04.2021	30.04.2021	05.05.2021	16.05.2021	
	Workshop	Workshop	Workshop	E-Mail	E-Mail	E-Mail	E-Mail	E-Mail	(abandoned)
t3	-156	-87	-34	-23	-20	-16	-11	0	

Figure 11 timed activities in documented sharing cases (own illustration)

No common pattern emerged from the comparative analysis. Case number 3 was not completed since it did not lead to an actual sharing activity taking place since the receiving partner discovered along the project that the need for the requested resource was no longer given. Two additional sharing projects (delivery service and personnel) were not sufficiently disclosed to the research initiative for due recording of their timeline. For better understanding the sequence of managerial activity, more emphasis on this aspect was put during the post-sharing interviews and coding thereof (cf. chapter 3.6.2).

3.6.2 Post-Sharing Interviews

With the explicit permission of participants, the interviews were audio-recorded, transcribed at verbatim, and coded independently in two cycles by two researchers using a hierarchical system of 30 codes (Table 5) built from (a) the nine

building blocks of the Business Model Canvas (Osterwalder & Pigneur, 2010), (b) the importance of action at the strategic, tactical, or operational level, (c) the organisational level of responsibility for sharing, (d) the timing of managerial action before, during, and after the sharing transaction, as well as (e) the three domains of managerial action (systems, organisation, people). In six interview documents, the researchers coded a total of 922 segments, with a frequency of codes in the range of 0 to 89. In order to focus on relevant aspects, frequencies of less than 20 were excluded from further analysis, which reduced the number of codes to 16.

For the two researchers, the coding data of 16 codes within six transcribed interviews was tested for inter-coder agreement using Cohen's kappa, considering a 50% overlap in the allocation of a code to a text segment a sufficiently coherent coding (J. Cohen, 1960; O'Connor & Joffe, 2020).

Table 5 Hierarchy of codes and frequency (own illustration)

	Frequency	List of codes and hierarchy	Frequency
Sharing Impact		Timing of Managerial Action	
at Business Model Level		pre-sharing	7
channels	0	**identifying resources**	89
customer relationships	8	**identifying partnerships**	70
key activities	10	during sharing	9
revenue streams	3	post-sharing	12
partnerships	49	Domains of Management Actions	
customer segments	1	Systems	
cost structure	61	financial resources	4
resources	8	**IT and infrastructure**	20
value proposition	20	**processes**	77
at strategic level	40	Organisation	
at tactical level	46	**organisational development and change**	30
at operational level	44	roles and responsibilities	19
Position of Sharing Responsibility		**communication**	33
CEO / management	48	People	
team	15	**management time**	26
specific member of staff / role	42	hiring and firing	5
outside the company's own organisation	26	development and training	12

A balanced total of 721 coded segments was analysed – 371 for researcher 1 and 350 for researcher 2. Agreement on coding ranged from 0% to 70%, with an average at 32.5% (Table 6). Inter-coder reliability reached k = 0.28 (Table 7), which can be considered sufficient given the complex nature of the data and the elaborate coding system (Brennan & Prediger, 1981; O'Connor & Joffe, 2020). For the relevant codes grouped under the heading "Sharing Impact", inter-coder reliability even shows a stronger k = 0.41, with weaker k values in the remaining coding structure and more open definitions in the codes' terminology.

Table 6 Level of inter-coder agreement along 16 relevant codes (own illustration)

Code	Agreement	Non-Agreement	Total	In %
value proposition	14	6	20	70.0
IT and infrastructure	14	6	20	70.0
at tactical level	32	14	46	69.6
at operational level	22	22	44	50.0
partnerships	24	25	49	49.0
cost structure	26	35	61	42.6
specific member of staff / role	16	26	42	38.1
at strategic level	14	26	40	35.0
processes	26	51	77	33.8
outside the company's own organisation	6	20	26	23.1
organ. development and change	6	24	30	20.0
communication	6	27	33	18.2
CEO / management	8	40	48	16.7
identifying resources	12	77	89	13.5
identifying partnerships	8	62	70	11.4
management time	0	26	26	0.0
<Total>	234	487	721	32.5

The audio recordings were in native Swiss German dialect, translated to written German at the time of transcription. An English language coding system was applied to the German transcriptions; with the code analysis and calculations all based on the English codes. For reader convenience, the interviews were automatically translated to English using deepl. Quotes were extracted from the German original transcripts and integrated with their English translation in the results (Chapter 4), providing the interview and line along with the German original as a footnote reference.

Table 7 Calculation of inter-coder reliability (own illustration)

		Researcher 1		
		1	**0**	
Researcher 2	**1**	a = 234	b = 254	488
	0	c = 233	0	233
		467	254	721

P(observed) = Po = a / (a + b + c) = 0.32

P(chance) = Pc = 1 / number of codes = 1 / 16 = 0.06

Kappa = (Po - Pc) / (1 - Pc) = 0.28

3.6.3 Business Model Canvas

For each participating company, a Business Model Canvas was pre-filled with publicly available information (e.g. company website, annual reports, media reports) and then discussed with the company expert (cf. Table 2) during a personal, digital workshop in March 2021 using Miro to record the BMC.

From the post-sharing interviews (cf. chapter 3.6.2) emerged that the likely affected areas in the canvases are cost structures, partnerships and value proposition. The four companies which participated in one or several sharing transactions (Table 4) were subsequently querries on their assessment for a change in their business model, confronting them with three hypothesis as follows (cf. Appendix I):

#1 – sharing transforms the business model

#2 – the business model evolves in the domains of partnerships, value proposition und cost

#3 – the changes persist for the long-term beyond B2B sharing transactions

They replied with individual statements by e-mail (cf. Appendix I), their consolidated feedback was then validated at a closing workshop on 13 September 2022 including a recording and transcript of the conversation and validation statements by the participants (Appendix J) using the same recording, translation and transcription procedure as outlined above (chapter 3.6.2).

3.7 Ethics of Research

The first concern is on the ethics of the research question itself: "what managerial action is required for SMEs to advance their business model to shift from owning to sharing?" (cf. chapter 2.6). From a utilitarian perspective, maximising the well-being of all participants appears unequivocal in that the advancement of a business

model from owning to sharing implies an improvement without negative effects arising directly from the research question itself. The research question offers no indication to infringe on the voluntary participation of stakeholders or harm participants.

Taking a categorical imperative perspective to the research question, looking for universally valid laws to emerge from the research, one can determine some further aspects which might warrant a discussion form an ethics standpoint:

a. The question implies a market-capitalist / competitive worldview wherein advancement of a company or business is in itself positively connoted. Common management wisdom in today's competitive market economies implies that companies strive to improve or differentiate their market offerings or lower their competitive cost. This ensures or even grows their profitability which in consequence allows them to reinvest resources, yet again enhancing their competitiveness, creating sustainable competitive advantage over time (Porter, 1985). With most of the world's economies, markets and industries currently following these principles in the sense of a natural habitat for SMEs, the underlying assumption in the research question might be considered acceptable, leaving it to market forces and regulative bodies to ensure the wider wellbeing of individuals in a society by attributing the gain in wealth from competitive market transactions to be shared with all (through fair salaries, taxation and other regulations).

b. The question assumes that managerial action is in a causal relationship to such advancement so that it is merely a question of what managerial action is required, not if. By definition, management is the administration of an organisation by planning (defining a strategy) organising (ensuring its implementation through setting objectives and applying available resources) as well as leading and controlling that organisation (Bowden, 2020, p. 25). This definition supports a management-focused applied research by assuming that managerial action contributes to advance an SME's business model from ownership to sharing, which is both a definition of company strategy (cf. comparison of business models), setting objectives (selecting sharing partnerships) and applying resources (implementing sharing transactions).

c. A positively connoted advancement i.e. improvement is expected by the shift from owning (a lower level) to sharing (a higher level). As with other forms of

SME collaboration, positive effects on competitiveness from B2B sharing are advocated (Hong et al., 2014; Soltysova & Modrak, 2020).

3.7.1 Ethics of the Methodology

Evaluating the chosen methodology from an ethics standpoint, one would first need to answer if the chosen methodology likely answers the research question and thus justifies the effort invested into the research (given, as discussed above, that the research question itself holds true from an ethics standpoint in being a true and worthwhile quest). Having collected support for the research on B2B sharing in financial and human resource contribution from nine industry partners, two research institutions and a federal government fund (cf. Appendix B) support the claim for a common good to emerge from this research effort well beyond the researcher's own interest. Furthermore, substantiated predictions on the economic outcomes of the research initiative to the benefit of contributing parties but also the greater SME community were developed and submitted with the research funding request (Jüttner, Huber, & Wäfler, 2019).

With regards to the methodology itself, an ethics review of each applied method, namely the cyclical nature of action research, but also the use of observations, semi-structured interviews and workshop formats need to be individually reviewed. Using a utilitarian perspective, the application of the methods yielded the best possible benefits to the participants, which might be difficult to prove for each step along the research project as participants may not directly and specifically benefit from each step in the research process. However, the results of the research are of higher benefit to all participants if the systematic analytical research is conducted alongside their sharing activities with potential improvements in later cycles, than if that research were not conducted. So while ethics may be difficult to apply individually to each method and each step of the research, the methodology as a whole can be considered to respond to ethical requirements.

3.7.2 Rationale for a Qualitative Research Method

Qualitative research "*implies an emphasis on the qualities of entities and on processes and meanings that are not experimentally examined or measured*

(if measured at all) in terms of quantity, amount, intensity, or frequency" (Denzin & Lincoln, 2011, p. 8). It "*seek answers to questions that stress how social experience is created and given meaning*" (idem). The research gap identified within the Shift from Owning to Sharing is indeed a qualitative one, i.e. that "*there is a lack of knowledge on **how** these companies* [small and medium-sized enterprises] *actually manage the shift from owning assets to sharing them*" (cf. chapter 2.5), the emphasis being on "how".

Since the aim of this research is "*exploratory in nature, and seeks to unearth an understanding about an area that little is known about (…), qualitative methodologies would be appropriate*" (Thomson, 2011, p. 78). "*Qualitative research is particularly relevant when prior insights about a phenomenon under scrutiny are modest, implying that qualitative research tends to be exploratory and flexible because of 'unstructured' problems (due to modest insights)*" (Eriksson & Kovalainen, 2008, p. 5).

In other words, current research on the subject matter had not yet determined what managerial actions are needed for small and medium-sized enterprises (SMEs) to shift from a business model built on ownership to one that includes the opportunities of sharing resources with other businesses. To understand what these managerial actions are, which of them positively affect the SMEs' propensity to engage in sharing transactions and subsequently evolve their business model to benefit from sharing, is thus a qualitative research question since it investigated the qualitative characteristics of processes and meanings that result from it.

In keeping with qualitative research, which focuses on contexts and relationships of participants (Saunders et al., 2015, p. 168), the research underlined the qualitative nature of the question which explicitly "*aims to understand the managerial action required to move from a business model based on ownership to a new business model that embraces sharing*" (cf. chapter 2.6). The objective with this approach is to understand the social world and examine its interpretation of the participants (Bryman & Bell, 2015, pp. 404–406). More specifically, the research investigates the qualitative nature of managerial action in how sharing "*affects systems, organisation and human beings*" (cf. chapter 2.6). In so far, qualitative research was used in this project as "*the basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways*" (Guba & Licoln, 1994, p. 105).

Although desirable, quantitative research in the specific realm of the identified research gap was out of reach because the current body of literature offers too little knowledge on how SMEs transform their business model to embrace sharing which still appears complex and ambiguous (e.g. Soltysova & Modrak, 2020). A set of relevant factors or activities that facilitate the transformation from ownership to sharing were yet to be identified which then could be modelled into causal and measurable hypotheses to be validated using quantitative research methodology (answering how much / how many / how long / etc.). Quite to the contrary, the domain of business-to-business (B2B) sharing had been confined to mostly focused and fragmented research on (a) the motivations and obstacles for B2B sharing (e.g. Cho et al., 2013; Choi et al., 2014; Hong et al., 2014), (b) resources likely to be shared (e.g. Eschberger, 2020; Grondys, 2019; Vătămănescu & Alexandru, 2018) and (c) the role and opportunities of platform operators (e.g. Cohen, 2016; Esselin & Falkenberg, 2019; Laczko et al., 2019; Muñoz & Cohen, 2018).

It would have been unsuitable and questionable to quantitatively investigate managerial actions, not yet knowing which actions will be required for a successful shift from owning to sharing. Furthermore, the transformative nature of managerial action itself might need to be examined for quantitative validation and causalities due to the complexity of the research object itself, i.e. managing a business. In every aspect, the research gap, research question and research methodology fulfil the requirements for qualitative research and respect its characteristics: a focus to understand and interpret yet unknown, complex realities; aiming for an in-depth understanding on the subject to generate new theory from that research (Carminati, 2018). Qualitative research ensures a holistic approach to broad questions while recognising that business and human realities are complex (Hesse-Biber & Leavy, 2010, p. 7 cont.) while there is a need to understand the human (here: the managerial) experience in its daily context and derive commonalities from it.

To date, only few cases could be found of SMEs successfully engaging in B2B sharing (e.g. Eschberger, 2020; Zhang et al., 2019) despite the obvious benefits and opportunities for SMEs especially in asset-intensive industries (Grondys, 2019). Quantitative research to validate the characteristics of SMEs successfully engaging in B2B sharing was therefore build on a very small sample since only few of the entire

SMEs population ever engaged in B2B sharing. Thanks to a better understanding of the managerial effort and change in business model required from this research (cf. chapter 2.4), it was this qualitative research project's objective to allow more SMEs to engage in sharing activities. This research was therefore a prerequisite for generating more sharing activity within the SME population which then may lead to quantitative research with increased validity and reliability. This research aimed to "*determine what managerial action is required for SMEs to advance their business model to shift from owning to sharing*" (cf. chapter 2.6) which, once understood and more SMEs engaging in sharing activities, quantitative research on these sharing activities might be conducted with stronger statistic validity to the broader SME community.

Given that a set of SMEs enthusiastic to engage in B2B sharing had been recruited as partners in this research effort (cf. Appendix A), this allowed to apply a positivistic and inductive approach, generating new knowledge and building theory from using Action Research. "*The participatory ontology and epistemology of Action Research*" demands to meet "*the positivist criteria of quantitative measurement, validity, reliability, generalisability, and third-person writing style*" (Zuber-Skerritt & Fletcher, 2007, p. 414) which will be discussed in Chapter 3.7.3 In the specific context of a DBA thesis employing action research (AR), Coghlan et al. (2019) recognise and structure the parallel yet different contributions from the "core AR project" – in the present research confined to the Innosuisse research initiative (cf. Appendix B) (Huber, 2021, pp. 49–51)– and "thesis AR project", i.e. the DBA proposal to MSSU, respectively (cf. Figure 12).

	Core AR Project	Thesis AR Project
Context	Real issue for real people with stakes for resolution Causal analysis of forces in external and internal context	Framing contribution in practical and theoretical contexts Causal analysis of forces in external and internal context
Quality of relationships	Community of inquiry Collaborative working relationships among key actors Managing political dynamics ethically	Community of inquiry *Developing modes of collaborative inquiry with co-researchers that engage with actionable knowledge cogeneration as well as project advancement
Quality of AR process	Collaborative engagement in cycles of context analysis, planning action, taking action, evaluating action and reflection on learning	Engagement with meta-learning • Content • Process • Premise
Outcomes	Relevant sustainable progress on the issue	Actionable knowledge

Figure 12 core and thesis projects in Action Research
(Coghlan et al., 2019, p. 54)

The theory of research and the paradigm are founded on a constructivist view. In constructivism, the realities are constructed locally and specific, and depend on the individuals while findings are generated with the progression of the research through the interplay of investigator and the research object (Guba & Licoln, 1994, pp. 110–111). Or more broadly, "*we are all constructionists if we believe that the mind is active in the construction of knowledge*" (Schwandt, 2000, p. 189).

3.7.3 Consideration on Validity of Findings

"*Validity is concerned with the integrity of the conclusions that are generated from a piece of research*" (Bryman & Bell, 2015, p. 50) divided into the measurement validity (chapter 3.7.3.1), internal validity (chapter 3.7.3.2), external validity (chapter 3.7.3.3) and ecological validity (chapter 3.7.3.4). Reliability will be discussed separately (chapter 3.7.4) with a conclusion on specific measures to ensure validity and reliability in this research project.

3.7.3.1 Descriptive Validity or Measurement Validity

Interchangeably referenced to as "measurement validity" or "credibility", descriptive validity ensures that data is accurate in that it correctly represents or reflects reality, i.e. that qualitative research records what actually happened during an observation and documents what a participant had actually said or done (Thomson, 2011, p. 78). It must respect (a) the ontology, i.e. the nature of 'reality', such as the

essence of the phenomenon under study, and (b) epistemology, i.e. assumptions about the grounds of knowledge, and how this knowledge can be grasped through methods of inquiry (Houman Andersen & Wagtmann, 2004). The phenomenon of B2B sharing is described as "*activity of obtaining, giving, or sharing the access to goods and services, coordinated through community-based, often online services*" in "*an economic relationship between two independent legal entities*" (Chapter 1).

The research argues that managerial action is required to engage companies in sharing activities and thus transform their business model from asset ownership to sharing (cf. chapter 2.4). The exploratory and transformative nature of this qualitative research calls for the methodology of Action Research (cf. Figure 4) built on cycles (Dick, 2000). Particular attention was given to maintaining the cyclical nature of action research (Cassell et al., 2009; Coughlan & Coghlan, 2002) in several iterations of the same sequential steps, namely (1) the collection of data, (2) data analysis, (3) action planning, (4) implementation and (5) evaluation.

Validity claims in action research might warrant "*more attention perhaps than in some other forms of qualitative research methods*" as "*partiality and impartiality and the validity of the narration given in the research need to be addressed explicitly (…) to give a valid presentation of what has taken place in the organization (…) that has been studied*" (Eriksson & Kovalainen, 2008, p. 203). It recognizes the overarching process of action research and thesis writing (cf. Figure 15). In response, the research project meets these expectations through the following measures:
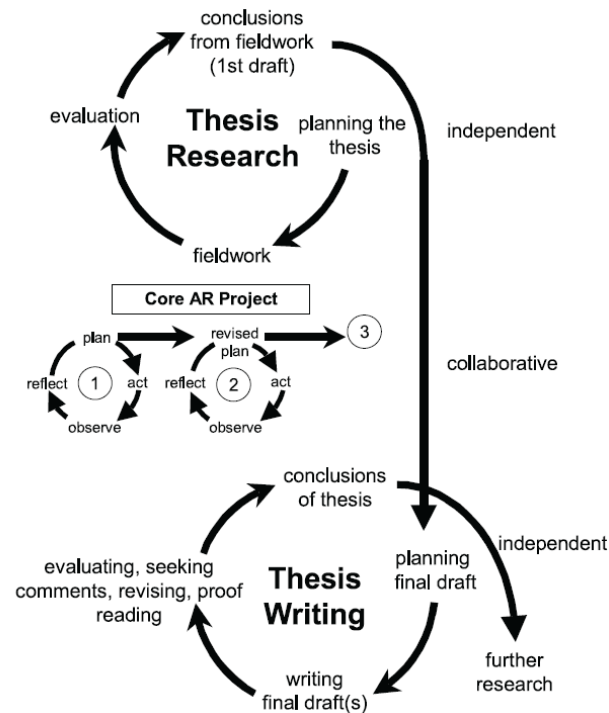
Figure 13 relation between thesis research, action research and thesis writing
(Zuber-Skerrit and Perry, 2002, p. 177)

a. The position, aims and research interests of the author were stated transparently for all stakeholders such as to the MSSU-DBA committee in the DBA proposal (Huber, 2021) as well as participating companies and sponsors through the jointly written and unilaterally signed project description and request for government funding (Jüttner, Huber, & Wäfler, 2019)

b. Argumentation for action research methodology and the value add from choosing this approach has been specifically discussed (Huber, 2021, Chapter 3.1)

c. Contributions to both the academic realm and managerial practice are duly outlined (cf. chapter 5)

d. The points of inference were transparently illustrated in the research framework and methodology (cf. Figure 4) consisting of timed observations on a series of sharing transaction across the set of SMEs participating to the research project along with semi-structured interviews in dialogue with the researcher then coded and compiled into knowledge both for use in later cycles and for answering the overall research question.

e. The transformation process from one cycle to the next as well as globally from a business model based on ownership to one that includes sharing is explicated transparently and built into the methodology by using Business Model Canvas for structured analysis (cf. Chapter 2.6.1)

f. The project openly embraces the complexity inherent in organisational transformation accepting intended and unintended consequences that require a reflected discussion along the analysis of data on cause and effects directly attributed to the Shift from Owning to Sharing with its managerial actions separating from those any unrelated observations and effects.

3.7.3.2 Internal Validity

Internal validity challenges "*whether a conclusion that incorporates a causal relationship between two or more variables holds water*" (Bryman & Bell, 2015, p. 50). The iterative nature of action research allows to explore causal relationships in earlier cycles and validate them in later cycles of the same case or even across cases (Eriksson & Kovalainen, 2008, pp. 199–200). This is inherently present in the within-case and cross-case analysis built into the present research methodology (cf. Chapter 3.4).

The key focus in this qualitative research lies on identifying variables, i.e. management action, that matter in the transformation from ownership to sharing vs. actions that do not matter. Particular attention was given to discern cause form effect, i.e. where managerial action is a response to an effect (i.e. the cause emerges from the sharing project or elsewhere and managerial action follows) vs. managerial action that enables or facilitates sharing transactions. By using Business Model Canvas (Osterwalder & Pigneur, 2010), a structured and validated framework to compare the participating companies' mode of operation before and after they have engaged in sharing, allowed to compare variables of each business in a structured and objective manner to maximise internal validity within and across cases.

3.7.3.3 External Validity

External validity is concerned with the generalisation of results outside the analysed research context (Bryman & Bell, 2015, pp. 50–51) which requires first to

openly and transparently disclose the specific research context before evaluating how and to what extent a generalisation of results might be valid. In this project, "*data was solely collected in an SME context (…), validity and application of results is therefore willingly limited to SMEs and a direct extension to larger organisations cannot be justified*" (cf. Chapter 5.5). Even for an SME context, the findings may need to be carefully scrutinised and accounted for their specificity due to (a) the exclusively Swiss context in which the data will be collected, (b) any industry-related limitations, (c) findings related to specific resources that are shared and (d) characteristics of the sharing transactions observed (cf. Chapter 2.3). These limitations were discussed before applicability of results and external validity was claimed.

Along an action research project, research goes hand-in-hand with problem solving, which requires a stronger emphasis on reflective action or reflexivity in balance of generalisation (Eriksson & Kovalainen, 2008, pp. 207–208). For doing so, the contextual conditions of this research project were aptly outlined (Jüttner, Huber, & Wäfler, 2019) along with detailed descriptive of the participating organisations and the key informants along a Business Model Canvas analysis of each SME (cf. Chapter 3.2). The transfer of contextualised knowledge to other settings then required an active process of reflexivity instead of direct generalisation of findings (Eriksson & Kovalainen, 2008, p. 208). So if through reflexion, common observations and repeat behaviours were identified both within a given case (i.e. one SME engaging in repeat sharing transaction of the same or different resources) and across cases (i.e. different SMEs show the same managerial action in diverse sharing transaction), a higher external validity of findings may be claimed.

3.7.3.4 Ecological Validity

Ecological validity refers to the appropriateness of measures in relation with the research object's natural habitat (Bryman & Bell, 2015, p. 51), i.e. the usual context for managerial action in SMEs. The overall initiative in which this research was included (Appendix B) ensured that the data collection from observation, interviews and workshops was fully and appropriately embedded into the day-to-day managerial actions of participating companies. Action Research in itself systematically imposes ecological validity in that it enforces a constant and cyclical dialog between in-practice

action and research (Coghlan & Shani, 2020). Particular attention was given to ensure that the sharing transactions were carefully documented and recorded the actual sharing such as it occurred in the real world (cf. Chapter 3.4). This included data-based observation of each sharing transaction followed by a semi-structured interview to reflect the observations and especially complement managerial action for each transaction (cf. Appendix C).

3.7.4 Reliability of Findings

Reliability refers to the reproduction and repeatability of the results of a study (Bryman & Bell, 2015, p. 49), the "*degree of consistency (...) that another researcher can replicate your study and come up with similar findings*" (Eriksson & Kovalainen, 2008, p. 291). Maximising reliability in this research project required the action research process to be clearly specified along with detailing the data collection and analysis pertaining to each cycle (cf. Figure 4). Collected data was structured and made available along with an explicit, repeatable process of data analysis and interpretation which focused on answering the research question. Namely, participating SMEs agreed during a research project meeting on February 4th, 2021 (cf. Appendix K) with the researcher to record their interactions prior, during and after each sharing transaction. They further consented to semi-structured interviews after each sharing transaction and two workshops on the Business Model Canvas of their company before and after the sequence of sharing transactions.

Systematic coding of narrative data from interviews along with a structured and time-stamped recording of all observations relating to each sharing transaction increases reliability. Open descriptions and disclosures of each data set and case allows other researchers to track the analysis and repeat the results. Furthermore, the methodology and research process aim to be transparent and self-explanatory so that both can be applied to another set of research objects in another context (e.g. companies of different size, industry, geographical region, etc.) to obtain more systematic findings further validating the results of this explorative research.

Since anonymous data can be made accessible for third party review, it needs to be collected, structured and presented such that outsiders themselves can follow the logic to obtain a reliable picture of the reality represented by the data (Eriksson &

Kovalainen, 2008, p. 71). Consequentially, reliability can be improved by transparently outlining the logic of analysis, the logic in arguments while reporting the analysis in the research report and keeping records of the procedure of analysis for later inspection of the investigative and analytical processes themselves. This imposes to keep records of the raw data (i.e. audio files of interviews, datasets on the sharing transactions, etc.) on file along with intermediate versions resulting from coding, analysing, and condensing the data while duly documenting the logic that guided the treatment of the original data towards emergent new knowledge.

In this research, measurement validity was maximised by systematically applying the chosen research methods (cf. chapter 3) and upholding stringent standards of collecting, analysing, and interpreting data, constantly aiming to discern facts from opinions and interpretations. While limitations in validity and reliability are discussed, the research offers suggestions from a methodological standpoint in how the results can be further validated either with the same methodology being applied to a wider or different dataset or by using alternative and complementary research methodology, such as a quantitative study. Applying the CRASP model for effective action research, this research employed "*critical (and self-critical) collaborative enquiry by reflective practitioners being accountable and making the results of their enquiry public, self-evaluating one's practice and engaging in participative problem-solving and continuing professional development*" (Zuber-Skerritt & Fletcher, 2007, p. 416).

Overall validity and reliability in Action Research was ensured along five key issues (Reason & Bradbury, 2001, p. 449):

a. ensuring the quality of participation and relationship by embedding the participating SMEs into a joint applied research initiative on the B2B sharing economy (Jüttner, Huber, & Wäfler, 2019)

b. reflecting on the value of the practical outcomes of this research project (cf. chapter 5) carried into the DBA thesis writing (cf. Figure 12)

c. drawing on and integrating diverse ways of knowing and using different methods appropriately and creatively in collecting data through observations, workshops and semi-structured interviews (c.f. chapter 2.6)

d. evaluating the value of the work against its purpose of creating a better life and world for us and others, especially investigating dimensions of economic, ecologic and social sustainability of B2B sharing (cf. chapter 2.1.2)

e. achieving systematic, systemic change by better understanding the shift from ownership to sharing over time, which means the enduring consequence of the research findings on oneself (i.e. the researcher), partners (i.e. participating SMEs) and the wider context (i.e. non-participating SMEs, the wider industry, market, region and society)

In summary, the proposed research project responds to the requirements of quality action research to maximise validity and reliability (Zuber-Skerritt & Fletcher, 2007, pp. 417–418) in that it is (a) practice-oriented, (b) participative, (c) focused on significant issues, (d) using multiple perspectives, (e) rigor in action research methodology, (f) explicit outlining assumptions and (g) reflective, self-critical and ethical.

3.7.5 Ethics of the Researcher, the Involved Institutions and Stakeholders

Investigating into ethics related to the role of the researcher, one might first challenge the researcher's profile to claim this subject matter territory and challenge his expertise in the research field and how the researcher relates to researched topic, or knowledge production, in general (Eriksson & Kovalainen, 2008, p. 63). To justify his claim of the research gap, that "*there is a lack of knowledge on how these companies actually manage the shift from owning assets to sharing them*" (cf. Chapter 2.5), the author has investigated the current body of literature to understand the phenomenon of B2B sharing (cf. Chapter 2). He illustrates that other authors (cf. Antikainen et al., 2018; Hong et al., 2014) concur that SMEs struggle to shift their business model from ownership to sharing because they do not understand what managerial action is required to facilitate the shift. By doing so, the author has consulted a broad range of sources from academia and industry practice which allowed him to collect and acquire credible expertise in this subject matter himself.

In implementing the research project, well-established ethical principles pertaining to the researcher, research participants and their relationship were conferred (Bell & Bryman, 2007, p. 71):

a. Harm to participants –transcripts and coding of expert interviews were anonymised to minimize negative effects on participants resulting from any of their statements. At the same time, this reduces the risk of disclosing confidential information accidentally shared by the participants leading to sanctions. Names and company names along with further specific details and information which could lead to unintentionally uncovering the experts' identity or company were anonymised.

b. Dignity – the researcher confined the research to the agreed subject matter and avoid any discomfort or anxiety from irrelevant information unintendedly disclosed by participants.

c. Informed consent – participants explicitly expressed their consent to this research which was already conceptually integrated in the research initiative proposal submitted for government support (Jüttner, Huber, & Wäfler, 2019), with an explicit commitment to participate in the research initiative, expressed in a letter of intent (Appendix A). Additional verbatim consent on the specific methodology for this research project obtained during a conference meeting with all the participants from industry on February 4th, 2021 (Appendix K).

d. Privacy – only information on a company, sharing transaction or participants which is relevant was exchanged in confidential interactions between the researcher and the respective participant, protecting the privacy of research subjects and avoid invasions of privacy.

e. Confidentiality – all research data from individuals (managerial action), companies (business models), other groups and organisation were treated strictly confidential and stored safely with access restricted to the researcher and solely for duration of the research.

f. Anonymity – whenever specifically requested, anonymity of individuals and organizations was respected and information thus protected from disclosure to any third party.

g. Deception – information and research data was scrutinised for any misleading behaviour or lies with any indication thereof leading to the removal of said data or observations from the body of knowledge.

h. Affiliation – all professional and personal affiliations in the context of the research were fully and openly disclosed, including conflicts of interest and

sponsorship. Specifically, the source of funding and joint investment by the participants into this research initiative has been disclosed in full and from early on (cf. Appendix A, Appendix B).

i. Honesty and transparency – information about the research has been openly and honestly communicated to all interested parties through the jointly agreed research request for funding (Jüttner, Huber, & Wäfler, 2019) and along repeat regular meetings with all parties since the project's kick-off in March 2020. A significant level of trust between all involved parties was established along the process thus far, which in itself is of particular importance for interdependent sharing transactions to be tested and implemented (Brettel et al., 2014; de Araujo & Franco, 2017; Thomason et al., 2013).

j. Reciprocity – benefits to both the researcher and participants are inherent requirements to obtain Innosuisse funding (Innosuisse, 2020) and have been manifested in the research proposal (Jüttner, Huber, & Wäfler, 2019) with a predetermined amount of hours as active participation to be contributed by both the researchers and industry participants.

k. Misrepresentation –misleading, misunderstanding, misrepresenting or false reporting of research findings was avoided by including participants in the validation of findings, both from their own case and across cases within the community of practice in the research initiative such to prohibit silencing and plagiarism.

In the specific setup of this research initiative, the total of nine set participants from industry are grouped in two types: company cases and facilitators (cf. Table 8). With regards to ethics and informed consent, this distinction is particularly relevant and requires for all involved parties to be aligned on the differences in roles, benefits and responsibilities resulting from either role. Namely, it was transparently und unilaterally agreed between all parties, that (a) the company cases benefit during the research project from effectively achieving positive impacts on their business and business model by successfully implementing and completing sharing transactions while (b) the facilitators will benefit only later but in a more substantive part by commercialising the general findings on B2B sharing as part of their marketplace / platform-mediated business model toward more SME prospects and customers (Jüttner, Huber, & Wäfler, 2019).

Table 8 List of Research Participants from Industry by Type

Expert	Company	Job Title	Role in Project
DS	Company P	Head of Production	Company case #1
TS	Company T	CEO	Company case #2
TT	Company R	CEO	Company case #3
CS	Company E	Head of Division	Company case #4
WB	Company K	Head of Production	Company case #5
MS	Facilitator V	President	Facilitator #1
SC	Facilitator K	Founder	Facilitator #2
DF	Facilitator W	Corporate Communication	Facilitator #3
CK	Facilitator C	CEO	Facilitator #4

It is within the nature of sharing as such that the participants to this research had an inherent interest to add more SMEs to the community of research participants as the more SMEs participate, the more opportunities for matching sharing (i.e. supply and demand of a resource to be shared) may emerge. Throughout the progress of the research initiative, two additional SMEs joined the project. From a research and fairness perspective, all participants received equal treatment and were included in the methodology at equal importance because this ensures to record reality as best possible and further enhances validity and reliability by potentially collecting more data from more cases. From a practical standpoint, it was agreed amidst the original set of participants (cf. Table 2) that they maintain a veto right for any new additions to the community.

3.7.6 Ethics of Outcomes

Action Research produces outcomes during the course of the research project with the researcher being "in action", thus interacting with the research participant and research object throughout the cyclical course of the project (Cassell et al., 2009; Coughlan & Coghlan, 2002). In exchange for the additional time and resource invest of the research participants for contributing their data towards the research, they benefited from the reflected exchange with the researcher already during the project by increasing

the benefits to their organisation from one sharing transaction to the next. Bringing those results to the broader SME community in the form of published research findings then again aligns with the common good principle in ethics, imposing that the research will be adequately published.

Chapter 4
Results

The results are presented along the research question and research objectives (cf. chapter 2.6), starting with an overview of data quality and quantity (chapter 4.1), answering research objective 1 on business model transformation (chapter 4.2), discussing managerial action (chapter 4.3) in answer to research objective 2 and finally outlining the transformational process in the shift from owning to sharing as answer to research objective 3 (chapter 4.4). For reasons of confidentiality, the full transcripts of industry interviews are not attached, however the references to the interviews and original quotes are provided along the results chapter.

4.1 Overall Quantity and Quality of Data

The main challenge in the quantity of data lies in the number of sharing transactions which were conducted between participating SMEs in the given research timeframe. Despite strong engagement of all parties (industry participants and researchers), only few matches for suitable resources and partnerships could be found, much to the disappointment of all involved. The applied nature of this research also caused one case to be abandoned along the way (case 3 on sharing of expert staff) since the demanding partner no longer had the need for the resource in question. At the same time, two additional cases were offered for review and inclusion in this research, although the timeline of managerial action could not be monitored for these cases since they were started ahead of the research project and had been taking place for some time. In consequence, much attention was drawn to the post-sharing interviews, their transcription and qualitative analysis as well as thorough coding to ensure best possible insights based on a strong coding system and inter-coder reliability (cf. chapter 3.6.2).

While the overall quantity of data remained below expectations, the data can be considered of superior quality: interactions with industry partners and senior executives was based on mutual trust between all parties, very open and transparent, enthusiastic at times and always very diligent. All the requested interviews were conducted in the scheduled time; information on the sharing projects was transparently made available while both successes and challenges along the projects were openly disclosed. The

interactive nature of action research allowed an ongoing dialogue between the researchers and industry practitioners which adds to the quality of the data and results.

4.2 B2B Sharing has Only a Marginal Effect on the Business Model of SMEs

Out of the nine building blocks of the Business Model Canvas (BMC), three areas of change were identified via the coded interview transcripts as being relevant: value proposition, partnerships, and cost structures (cf. Figure 14). In dialogue with the researchers, participating SMEs compared their business models before and after their sharing activities in a qualitative questionnaire and confirmed that their business model remains mostly unchanged, with only the three building blocks potentially evolving, emphasising that sharing constitutes only an auxiliary activity to their core business (Appendix I).

The shift from owning to sharing leads companies (1) to rethink and potentially expand their value proposition on the market thanks to additional resources they may access, (2) to open up their business model to new partnerships in the form of sharing cooperations, and (3) to deliver benefits on their cost structure by either monetising an idle resource (as provider to the sharing transaction) or using a resource from a partner at a lower cost than with ownership or market-based rent.
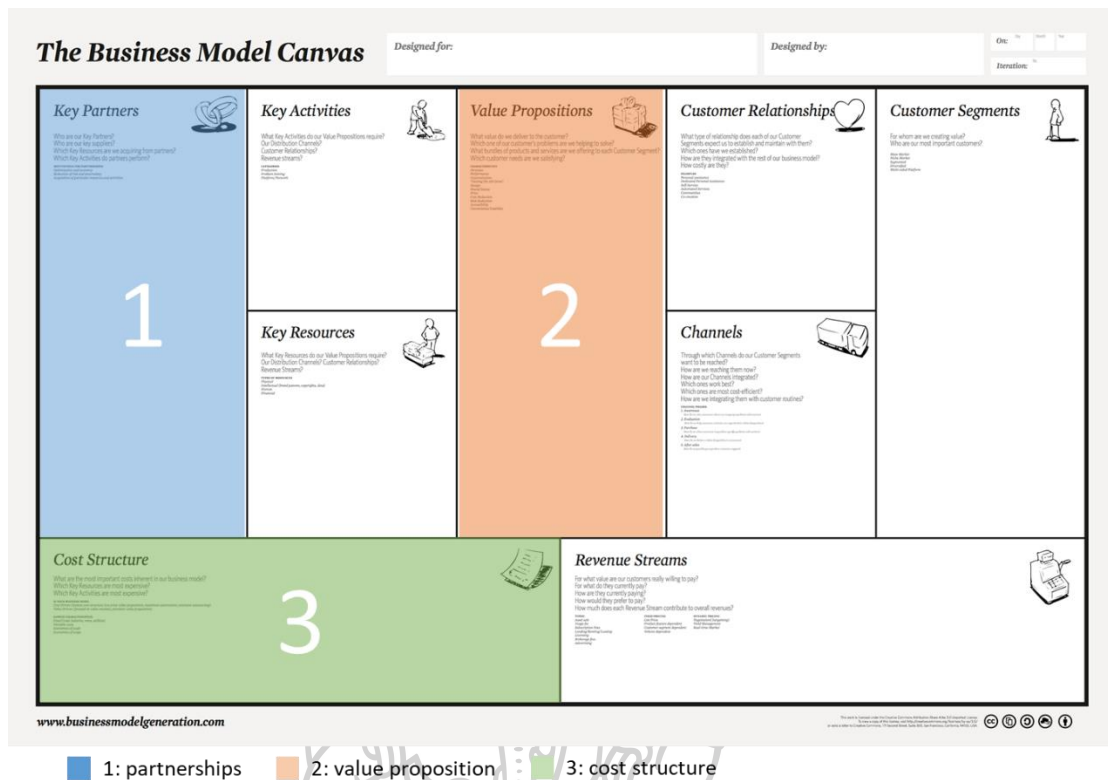
Figure 14 Business Model Canvas with highlighted areas affected by sharing
(cf. Osterwalder & Pigneur, 2010)

The data reveals that B2B sharing is considered by participating SMEs as only an addition to their core business activity and impacts their business models only to a limited extent. In this sample, all the companies were sharing resources outside of their core activities – i.e. "resources" and "key activities" of their business models were only seldom mentioned in the interviews (Table 5).

4.2.1 Expanding Value Proposition

Few comments were collected on the extension of a company's value proposition through sharing. Most of these showcase that making a partially idle resource available to others through sharing does create a new business activity or segment, but also stresses the fact that this activity will remain auxiliary to the company's core business.

Most apparent comments for an extension in its business model were made at the company which shared its 3D measurement with another company and classified

this as "a new business field in this way, which is quite detached, for sure." [2](interview M1, line 164) or even more explicitly "it's a bit special, it's actually like a new business field, this sharing" [3](interview M1, line 326). What was offered as a sharing activity is even considered to potentially expand into a new business activity of its own "there were ideas for the employees, we can also sell this [the 3D measurement as a service]. (…) So there are new, other things that can be done in addition, similar to this case." [4] (interview M1, line 306-309).

More frequent comments indicated that the sharing activity emerged more like an exclusive transaction with a well-chosen partner, but did not yield enough momentum to truly add a dimension to the business model as such, e.g. "for us it is somehow a sideline" [5](interview M1, line 132-133) or even "actually, we don't do any transport for third-party companies, it's really only between Company R and our customers" [6](interview T, line 25-26). Even ahead of the sharing transaction, some experts were clear that "it doesn't really become a business for us" [7](interview E2, line 418). Looking into sharing opportunities with an interested partner, they had to discern that "as far as the demand for batteries is concerned, we had to determine that it would be a typical commercial business" [8](interview E2, line 111-112).

In the context of discussing sharing as an additional value proposition to the existing business model, one party especially raised the challenge to distinguish sharing from other commercial transaction and interests within the existing business model, "are we now moving into a sharing topic or are we simply talking about the conventional trade topic?" [9](interview E2, line 88-89), and continued: "we were actually talking about a typical trade issue. They have a need, we have batteries. We

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[2] "ein neues Geschäftsfeld in dieser Art, das ganz losgelöst ist"

[3] "es läuft etwas speziell, ist eigentlich wie ein neues Geschäftsfeld, dieses Sharing"

[4] "es gab Ideen für die Mitarbeitenden, wir können das hier [3D Messung als Dienstleistung] auch verkaufen. (…) Es gibt also noch neue, andere Dinge, die man zusätzlich so machen kann, ähnlich diesem Fall."

[5] "für uns ist das irgendwie ein Nebenerwerb"

[6] "eigentlich machen wir keine Transporte für Drittfirmen, sondern das ist wirklich nur zwischen der Company R und unseren Kunden"

[7] "Für uns wird das nicht wirklich ein Geschäft"

[8] "Vom Bedarf an Batterien ist es so, dass wir festlegen mussten, dass es ein typisches Handelsgeschäft wäre."

[9] "bewegen wir uns jetzt in einem Sharing-Thema oder reden wir einfach vom konventionellen Handelsthema?"

want to sell them as such and the deal is done. That was not the sharing theme." [10](idem, line 91-93). This also hints at the fact that some sharing remains within the existing value proposition and might simply add a novel channel to market. With the value proposition potentially offering a long-term perspective, it was argued that sharing might need to be considered within a more strategic discussion (cf. chapter 4.3) "What is only purely based on 'what do we already have and what do we still need?' and what could emerge from it" [11](interview E2, line 462-463).

4.2.2 Economic Sustainability and Focus on Cost

Opportunistically, participating companies employ sharing as a more cost-efficient alternative to the purchase and ownership of resources they rarely use. In the interviews, managers often mention their motivation to find a cheaper option in accessing a resource through sharing, as opposed to existing ways of renting or purchasing that same resource.

In providing an otherwise idle resource, a key motivation is clearly monetary "HR costs, quite clearly" [12](interview P, line 175) and "Personnel costs that have been eliminated" [13](idem, line 176) with a clear objective to measure the cost-saving impact "But I can clearly measure the HR costs. (…) The personnel costs are absolutely measurable in francs." [14](idem, line 195-197). The same applies to the receiving end of the shared resource, e.g. "It's a price advantage for us if we can use it that way, definitely" [15](interview T, line 41-42) and more generally "it has to fit in financially, economically" [16](idem, line 419). This cost-benefit perspective is also supported from the providing side, e.g. "Of course, the cost-benefit perspective has been taken into account" [17](interview E1, line 162-163). The strong focus on cost savings is also

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[10] "wir da eigentlich vom typischen Handelsthema sprechen. Die haben ein Bedürfnis, wir haben Akkus und Batterien. Wir wollen das als solches Verkaufen und das Geschäft ist abgeschlossen. Das war nicht so das Sharing-Thema"

[11] "Was ist nur rein auf «was haben wir schon und was brauchen wir noch?» und was könnte quasi draus entstehen"

[12] "HR Kosten, ganz klar."

[13] "Personalkosten, die wegfallen"

[14] "Die HR Kosten kann ich aber klar messen. (…) Die Personalkosten sind absolut messbar auf den Franken."

[15] "Ist ein Preisvorteil dann für uns, wenn wir das so nutzen können, auf jeden Fall."

[16] "es muss vom finanziellen reinpassen, Wirtschaftlichkeit"

[17] "Die Kosten-Nutzen-Sicht hat man natürlich gemacht"

maintained in more complex sharing projects: "The advantage is that he [the supplier] delivers the raw material to us, so it's actually right there in the warehouse and we don't have to bring it here first. So we have also saved space in the warehouse there. and (…) Transport costs." [18](interview P, line 556-561).

In many instances, sharing is considered a cheaper option to alternatives of service providers in the market, the purchase or rent of a resource, e.g. "it's certainly cheaper than like giving it to a transporter, definitely." [19](interview T, line 17-18), even significantly: "if he had had it delivered by a haulage company, it would have cost 1,900 CHF; we charge 50 CHF, I think [laughs]. In that sense, it's a bit like sharing, because of the very low price" [20](idem, line 14-16). From the providing side, the lower cost to existing alternatives is a main line of argument "it is not more expensive for them than a temporary office. In fact, it's rather cheaper." [21](interview P, line 402-403). And continuing in the sharing of personnel "there are also temporary experts, they are just relatively expensive (…) they are a lot more expensive, you pay for that!" [22](idem, line 413-414). As expected, the frequency of use plays strongly into the cost considerations "But as I said, there are also thoughts like, "I need a few ants [forklifts] here 1-2 times a year, rent is expensive, isn't there an alternative?" [23](interview M2, line 304-305).

And while intuitively, the direct cost are most important, all experts highlight the need to take a full-cost perspective for long-term sharing projects and consider both direct and indirect cost when evaluating a sharing transaction's impact on their business model: "Then I think it eats up too many resources and the cost-benefit ratio quickly tips into the negative." [24](interview T, line 266-267) or "in terms of effort, it has to be a no-brainer" [25](idem, line 415) and "we must not completely forget our work either"

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[18] "Der Vorteil ist noch, dass er [der Lieferant] uns noch das Rohmaterial zuliefert, dass das eigentlich gleich bei ihm im Lager steht, und wir das nicht erst hierher holen müssen. Also haben wir dort auch nochmal Platz im Lager gespart. und (…) Transportkosten."

[19] "es ist sicher günstiger als wie wenn wir das einem Transporteur geben würden, definitiv."

[20] "wenn er es mit dem Spediteur hätte bringen lassen, hätte das 1.900 CHF gekostet; wir verrechnen glaub 50 CHF [lacht]. Insofern ist das schon etwas wie Sharing, aufgrund des sehr tiefen Preises"

[21] es ist nicht teurer für sie, als ein Temporärbüro. Ist sogar eher günstiger.

[22] "es gibt schon auch Fachleute temporär, die sind einfach relativ teuer (…) die sind dann einiges teurer, das bezahlt man dann schon!"

[23] "Aber eben wie gesagt auch so Gedanken, wie eben ich benötige 1-2 Mal pro Jahr hier ein paar Ameisen [Stapler], Miete ist teuer, gibt es da nicht eine Alternative"

[24] "Dann glaube ich frisst das zu viele Ressourcen und das Kosten-Nutzen-Verhältnis kippt schnell ins negative"

[25] "vom Aufwand her, da muss es ein Selbstläufer sein"

[26](interview P, line 397). Quite pragmatically, the initial effort is also taken into account, e.g. "the effort was actually quite low. One hour there, one hour on site, one hour back. It was worth it" [27](interview M2, line 342-343) and "Not in a way that we had to invest a lot of time in it" [28](idem, line 336-337) confirmed from the providing side "I would estimate that it took me maybe 2 hours of effort to make the sharing happen" [29](interview M1, line 141-142). One's own cost in engaging in a sharing transaction is monitored closely "There will be an additional effort, but it is relatively small. There is something extra: (…) So I have the half hour per month of effort" [30] (interview M2, line 363-366). Consequently, sharing parties optimise their cooperation early to ensure a most favourable cost for repeat sharing transactions, adjusting processes and systems on either end (cf. chapter 4.4.2), e.g. "just the administrative work involved in creating a delivery note and an invoice. Yes, it's also real work. It takes - let's say - a quarter of an hour. And then the goal of such a sharing transaction is to keep it as simple as possible. That's where we actually found each other. We said that they would like to have an annual statement. And they send us the parts without paper, simply to my hand" [31](interview M1, line 36-39). Here again, the experts take a holistic view: "But that also means that the effort and unrest in the business must remain as small as possible. If tens of levels have to be involved in every small sharing project and have to discuss in meetings, (…) then I think it eats up too many resources" [32](interview T, line 364-267). This may trigger considerations of adjusting one's own processes or priorities to reap cost advantages from sharing, e.g. "What it will definitely lead to is that we won't have to measure the part completely in

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[26] "wir dürfen unsere Arbeit auch nicht ganz vergessen."

[27] "sonst war der Aufwand eigentlich ziemlich gering. Eine Stunde hin fahren, eine Stunde vor Ort, eine Stunde zurück. Es hat sich gelohnt."

[28] "Nicht irgendwie, dass wir da noch lange Zeit investieren mussten."

[29] "damit das Sharing zu Stande kam, waren es vielleicht 2h Aufwand gewesen, sag ich mal. "

[30] "es wird einen Zusatzaufwand geben, aber der ist relativ gering. Etwas zusätzlich gibt es ja: (…)
Also habe ich die halbe Stunde pro Monat an Aufwand."

[31] "allein der administrative Aufwand, den man hat, um einen Lieferschein und eine Rechnung zu erstellen. Ja, ist auch echt Arbeit. Da ist man- - sagen wir mal – eine Viertelstunde dran beschäftigt. Und dann ist eben das Ziel von so einer Sharing-Transaktion, dass man das möglichst einfach halten kann. Da haben wir uns nun eigentlich gefunden. Wir haben gesagt, dass sie gerne eine Jahresrechnung haben. Und sie schicken uns die Teile ohne Papier, einfach zu Handen von mir."

[32] "Aber das bedingt auch, dass der Aufwand und die Unruhe im Betrieb möglichst klein bleiben muss. Wenn bei jedem kleinen Sharingprojekt zig Stufen involviert sein müssen und diskutieren müssen, in Meetings, (…) dann glaube ich frisst das zu viele Ressourcen."

the future, as we used to do in the office." [33](interview M2, line 117-118) also taking resource quality into account, e.g. "when you work with temporary agencies, I don't have a 100% probability that [they fit]. It's a certain amount of work. First of all, it's not cheap, it's more expensive than our sharing." [34](interview P, line 393-395).

As expected from literature, cost advantages are strongly scrutinized in the context of capacity – either available or needed for a limited period of time: "Most of them are then again in a price range where we have to say that it is simply not worthwhile for us because we would use it far too little. (…) You would then be cheaper, but you would still not have utilised it [the machine] better than the more expensive one." [35](interview M2, line 68-73) and adding the perspective of economies of scale "the quantity is right. This is very important, it is not worth spending money on every part to have it measured externally. Like this. It's worth it for this part." [36](idem, line 313-314). In the broader context, sharing is considered an alternative in a traditional "make or buy" where neither sourcing from the market or producing with own resources suits the business purpose: "that's of course about 'make or buy' in this thing, this context. (…) the problem is often when I make a "buy" decision, in order for you to get an attractive offer, there have to be certain quantities. Otherwise you give it away and the price goes up. But, oh, the machine is actually here, but somehow we don't have the space, so. There we have like the disadvantage of 'make' we have eliminated. The disadvantage was that we had a space badly utilised that we could have otherwise used. And have, we still do it ourselves, but just in a different place. An intermediate form, actually. We didn't have the disadvantage of the 'buy' then, that the price would have skyrocketed" [37](interview P, line 582-590).

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[33] "Zu was es bestimmt führt, wir müssen nicht in Zukunft das Teil komplett durchmessen, wie wir das bisher taten im Büro"

[34] "wenn man mit Temporärbüros zusammenarbeitet, habe ich keine 100%-ige Wahrscheinlichkeit, dass [der passt]. Das ist ein gewisser Aufwand. Erstmal ist es ja nicht ganz günstig, das ist teurer als unser Sharing."

[35] "Meist sind die dann wieder in einem Preisrahmen, wo wir sagen müssen, das lohnt sich einfach für uns nicht, weil wir die viel zu wenig nutzen würden. (…) Man wäre dann günstiger, hätte sie [die Maschine] aber dennoch nicht besser ausgelastet, als die teurere."

[36] "die Menge stimmt. Das hat eine hohe Wichtigkeit, es lohnt sich nicht für jedes Teil Geld in die Hand zu nehmen, um das extern messen zu lassen. So. Für dieses Teil lohnt es sich."

[37] "Weil, das Problem ist ja häufig wenn ich bei einer «Buy»-Entscheidung, damit Du ein attraktives Angebot bekommst, müssen ja gewisse Mengen gegeben sein. Sonst gibst Du es hinaus und der Preis geht in die Höhe. Aber, oh die Maschine ist doch eigentlich hier, wir haben aber irgendwie den Platz nicht, so. Dort haben wir wie den Nachteil von «make» haben wir eliminiert. Der Nachteil war, dass wir

Capacity volatility was especially apparent in the case of expert personnel which is difficult to find and easily scared away by idle time or furlough: "And if you are in the intermediate range – furlough is not worth it or you don't want to do it. And I still have excess capacities. But I don't know, I don't want to lay anyone off either, then [sharing] is like a kind of another variant to be able to reduce costs." [38](interview P, line 58-61). Again, the focus on cost at a time of low capacity is apparent: "there is the reduction in wage costs that I have during this time. I am hiring out staff because I don't have enough work. I have more resources than I have work for them. And so this improves my result because X amount of costs are eliminated" [39](idem, line 187-189).

On the providing side of a resource, the experts repeatedly mentioned that they did not aim to generate an additional margin or profit from sharing that resource but were content with monetising idle time of that resource, which to them was enough benefit and motivation to participate in a sharing transaction. Knowing of the search for cost advantages on both sides of the sharing transaction, pricing setting was a cooperative: "then we agreed on the price." [40](interview T, line 92) or "We really put a price tag on it. Here, too, there is a possible basis for negotiation." [41](interview E1, line 309-310) and "That you could also agree on an hourly wage so that you don't always have to renegotiate it" [42](interview P, line 12-13). And clearly accepting a cost-contribution from monetising idle time "If we now take 115 francs, I think we have defined that for the 2 measurements per month. And otherwise it would be at least 150 francs, up to 180 francs, if we were to look at it normally as a contract manufacturing

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eine Fläche schlecht ausgelastet hatten, die wir sonst hätten brauchen können. Und haben, wir machen es immer noch selbst, aber einfach an einem anderen Ort. Eigentlich eine Zwischenform. Den Nachteil vom «buy» haben wir dann nicht, dass der Preis in die Höhe geschnellt wäre."

[38] "Und wenn Du da wie im Zwischenbereich bist – also Kurzarbeit lohnt sich nicht oder will man nicht machen. Und ich habe aber dennoch Überkapazitäten. Ich weiss aber nicht, ich will aber auch niemanden entlassen, dann ist das [Sharing] wie eine Art eine andere Variante, um Kosten senken zu können."

[39] "Reduktion der Lohnkosten, die ich in dieser Zeit habe. Ich leihe ja Personal aus, weil ich zu wenig Arbeit habe. Ich habe ja mehr Ressourcen, als ich Arbeit für sie habe. Und somit verbessert dies mein Ergebnis, weil X an Kosten entfallen"

[40] "dann haben wir uns mal über den Preis verständigt"

[41] "Da haben wir halt wirklich mal ein Preisschild drangehängt. Auch hier gibt's eine mögliche Verhandlungsbasis."

[42] "Dass man so auch einen Stundenlohn vereinbart, dass man den nicht immer neu verhandeln muss."

order." [43] (interview M1, line 94-96). This is even considered a characteristic for sharing, e.g. "And we asked him if we could put the machine there, and then he made us a nice price. He doesn't earn anything from us" [44] (interview P, line 547-548). Some cost elements are even excluded entirely from the sharing transaction "We always do that free of charge now, yes. That is never something that is charged for." [45] (idem, line 417-418).

4.2.3 Widening and Deepening of Partnerships

Similarly, the interview data contains statements on the importance of mutually beneficial partnerships that emerge from sharing. Identifying like-minded SMEs with whom sharing could be one form of collaboration amongst others underpins the importance of new and more substantial partnerships that add to participating companies' business models.

Many experts underpinned how sharing creates new partnerships and deepens existing cooperations between companies, especially SMEs: "We already know that from the cooperation we have with competitors and neighbourhoods, where we work together and do a kind of sharing already, actually" [46] (interview M1, line 174-176) with geographical proximity a key driver "the valley is not that big. There aren't that many companies either. Yes, we already knew each other there." [47] (interview T, line 58-60). Even more so, sharing allows to deepen partnerships that previously existed "First there was the partnership. We've known each other for ages, our companies have been working together for ages" [48] (interview T, line 51-52) and "We already had the exchange. And then, out of that, these small projects came into being, which increase

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[43] "Wenn wir jetzt mal die 115 Franken haben wir glaub' ich definiert, für die 2 Messungen pro Monat. Und sonst wären es mindestens 150 Franken, bis 180 Franken, wenn wir das normal als Lohnfertigungs-Auftrag anschauen würde"

[44] "Und den haben wir angefragt, ob wir die Maschine dort hinstellen können, und dann hat er uns einen schönen Preis gemacht. Der verdient nichts an uns."

[45] "das machen wir jetzt immer kostenfrei, ja. Das ist jetzt nie etwas, das verrechnet wird"

[46] "Wir kennen das sonst ja schon von der Zusammenarbeit, die wir sonst haben mit Mitbewerbern und Nachbarschaften, die wir haben, wo wir zusammenarbeiten und eine Art Sharing bereits betreiben, eigentlich"

[47] "das Tal ist nicht so gross. Soviele Firmen gibt es auch nicht. Ja, man hat sich da schon gekannt."

[48] "da war zuerst die Partnerschaft. Wir kennen uns schon ewig, auch unsere Firmen arbeiten schon ewig zusammen."

the benefit of this exchange even more" [49](idem, line 337-339). In select cases, the partnership already had a specific form "that's one of our suppliers who has space to spare, and we asked him" [50](interview P, line 543) or sharing transactions created a new type of partnerships: "in principle, individual companies remained with whom we carried out these individual rental orders" [51](idem, line 13-15). Going forward, the development of these partnerships seems to be left quite open, e.g. "Whether this will always be a big partnership and collaboration in the future remains to be seen" [52](interview E1, line 88-89) and "one could strive for a possible cooperation there" [53](idem, line 263). For the sharing cases where no previous relationship existed, the potential for an ongoing and deepening form of cooperation and partnership was clearly envisioned. Even a joint market offering "maybe a business relationship will develop here so that we could offer something together" [54](interview M1, line 312-313) or financial cooperation "a little bit of value, or also a financial connection here, where the two companies are involved can certainly also be seen as causal in the time horizon." [55](interview E1, line 253-255) are considered.

Emphasis was placed on the quality of these new partnerships that emerge from sharing projects with a strong search for win-win and reciprocity: "if you do this kind of sharing, then you certainly also have the hope that you can do something for each other. If it's always one-sided, then it's no fun" [56](interview M1, line 423-425) and globally "When I conclude, from my point of view it is a win-win situation. We have now received an assessment of the website in the context of marketing, and we will provide Company S with expert knowledge in return" [57](interview E2, line 530-533).

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[49] "Wir hatten den Austausch schon. Und dann aus dem heraus ist glaub diese kleinen Projekte entstanden, die den Nutzen von diesem Austausch noch vergrössern"

[50] "das ist ein Lieferant von uns, der hat Fläche übrig, und den haben wir angefragt."

[51] "Hängen blieben dann grundsätzlich einzelne Firmen, mit denen wir diese einzelnen Verleihaufträge ausführten"

[52] "Ob das jetzt zukünftig immer eine grosse Partnerschaft und Zusammenarbeit sein wird, wird sich noch zeigen."

[53] "eine mögliche Zusammenarbeit anstreben könnte"

[54] "vielleicht ergibt sich hier noch so eine Geschäftsbeziehung miteinander, dass wir damit gemeinsam etwas anbieten könnten"

[55] "ein wenig eine Wertigkeit, oder auch hier eine finanzielle Verbundenheit, wo sich die beiden Firmen hineinbegeben ist sicher auch im Zeithorizont als kausal zu betrachten"

[56] "wenn man so ein Sharing macht, dann hat man sicher auch die Hoffnung, dass gegenseitig etwas machen kann. Wenn das immer nur einseitig läuft, dann macht es auch keine Freude"

[57] "Wenn ich das Fazit schliesse, dann ist es so dass aus meiner Sicht eine Win-Win-Situation herrscht. Wir haben jetzt eine Beurteilung der Website im Rahmen vom Marketing erhalten, wir werden Company

And more to the point: "Win-win situation. That's win-win, because when we have something then, we have a certain priority with them." [58](interview P, line 465-467) and fairness playing a central role "Advantage or not, but you also have to be a bit fair, I think, in that context. Otherwise it doesn't work" [59](idem, line 211-213). The mere partnership access to an otherwise unfamiliar company was attributed as a value from a sharing partnership "But that there really is this possibility of gaining access to other companies, that Company C was able to recognise very well - mutually. And that has an enormous amount of value, that's underestimated" [60](interview E1, line 352-354).

Many experts recognized the importance of initializing (cf. chapter 4.4.1), nurturing and facilitating these partnerships which really adds to their business model: "Actually, only through this 1:1 / tête-à-tête, yes. Where we really introduce Company C once again, Company S introduces itself once again. That's when the wheel started to move" [61](interview E2, line 243-245). In some cases the partnerships evolved into regular activities, e.g. "And that's simply done so that we always meet in rotation. Someone in the company, now it's Company R's turn. First it's our turn again, so we always meet" [62](interview T, line 359-361). The mutual trust is both required for these partnerships to work, but also increases as the partnerships deepen "But if they have already borrowed people from us several times, then they knew that these are good people who are coming. These are professionals who are coming, not just a temporary one" [63](interview P, line 399-401) and "insurance: I always hope nothing happens, then it's never a question. And if you don't know each other, things like that take on a different significance" [64](interview T, line 243-244).

S gegenüber im Gegenzug Expertenwissen vermitteln"

[58] "Win-Win-Situation. Das ist Win-Win, weil wenn wir dann mal was haben, haben wir eine gewisse Priorität bei ihnen, so."

[59] "Vorteil oder nicht, aber man muss auch etwas fair sein, finde ich, dann in dem Zusammenhang. Sonst funktioniert es nicht."

[60] "dass es wirklich diese Möglichkeit gibt, zu anderen Firmen einen Zugang zu erhalten, das konnte Company C sehr gut erkennen - gegenseitig. Und das hat enorm viel Wert, das wird unterschätzt."

[61] "Eigentlich erst durch dieses 1:1 / tête-à-tête, ja. Wo wir wirklich Company C noch einmal vorstellen, Company S sich noch einmal vorstellt. Da kam das Rad in Bewegung"

[62] "Und das ist einfach gemacht, damit wir uns immer im Turnus treffen. Bei jemandem in der Firma, jetzt ist Firma Compan R dran. Zunächst sind dann wir wieder dran, so treffen wir uns immer."

[63] "Wenn der aber schon mehrfach bei uns Leute ausgeliehen hat, dann wusste der, das sind gute Leute, die da kommen. Das sind Fachleute, die da kommen, das ist nicht einfach nur ein temporärer."

[64] "Versicherung: ich hoffe immer, es passiert nichts, dann ist das nie eine Frage. Und wenn man sich nicht kennt, dann bekommen solche Dinge gleich einen anderen Stellenwert"

4.3 SMEs strategically Shift from Owning to Sharing

Sharing was almost equally mentioned to take place at the strategic, tactical, and operational level (Table 5). All cases illustrated the need for managerial action on the three domains of (1) systems (predominantly processes, technical infrastructure, and IT), (2) organisation, and (3) people. Actions in all three domains were apparent during the entire process of planning, implementing, and evaluating sharing transactions (cf. chapter 4.4).

4.3.1 Top Management Involvement

Consistently, managers stressed the strategic effort and management time required at the pre-sharing stage to identify suitable partners and resources for a first sharing transaction. In SMEs, undoubtedly, this task falls to the CEO or top management where the time investment in appears to be significant, as many interviewees confirmed.

It starts with the fact that management support must be given on a broad scale, even if outcomes are uncertain in the early stages of a sharing project, e.g. "In order for this to be possible, it is clear that there needs to be a commitment, an OK, in the management, in leading functions, otherwise it won't work" [65](interview E2, line 282-284), "in the end, BF stood behind it as the business owner" [66](idem, line 265-266). A broad support and openness towards sharing in the executive board was mentioned by several experts, e.g. "where we exchanged ideas in the management and said, yes, that could be exciting, however and for whatever reason" [67](interview E1, line 7-8) and "an internal exchange, which we also had in the management" [68](idem, line 111-112) as well as "I think the enabler was the 2/3 team with me, ES and BF (who is the business owner)" [69](interview E2, line 184-185).

The search of suitable partners for sharing projects in SMEs falls naturally to the management which represents the company and evaluates first opportunities: "as a

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[65] "Damit das möglich wurde, ist klar, da benötigt es in der Geschäftsleitung, in leitenden Funktionen ein Committment, ein OK, sonst geht das nicht."
[66] "Am Schluss stand BF als Geschäftsinhaber dahinter."
[67] "wo wir uns in der Geschäftsleitung ausgetauscht hatten und sagten, ja, das könnte spannend sein, wie und warum auch immer."
[68] "internen Austausch, den wir in der Geschäftsleitung auch geführt hatten"
[69] "Enabler war glaube ich schon das 2-/3-er Gespann mit mir, ES und BF (der Geschäftsinhaber ist)."

manager I was the mediator. I think I played a role as a moderator in bringing the Company C party and the Company S party together" [70](interview E1, line 197-199), reciprocally "I will be the enabler as a person. So I will be the one who basically allows and manages the connection between Company S and our partner." [71](interview E2, line 412-413). This is confirmed in other partnerships "And now that the possibility came up, I took over the organisational part and established contact with you [the research team], Company T." [72](interview M2, line 75-77), with quite some operational involvement in the early stages: "Then we have an offer, that went through me, that I had made, a proposal. Then Company P made a counter-proposal." [73](interview M1, line 26-27). Quite unequivocally, this modus operandi is expected to persist in future sharing project opportunities "And I will - once the platform has been finalised in a way and has come to a stand - certainly continue to exchange information there in the future. I also believe that I will be able to expand the network of more companies." [74](interview E1, line 317-320).

Similarly, to identify idle resources or a need for a temporary resource that could be shared instead of purchased or rented, a global view of the company was necessary in these early stages of sharing, further arguing the need for senior management involvement: "We simply thought about where we have which system or what is not fully utilised. What do we have in operation that we don't use 100% of the time" [75](interview M1, line 191-192), or "I need a few ants [forklifts] here 1-2 times a year, rent is expensive, isn't there an alternative? I need trolleys for inventory every now and then. As I said, you could measure parts, that we have even more accurate measurements, etc. Those were the first thoughts we had about the sharing project"

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[70] "ich war als Führungskraft der Vermittler. Ich glaube ich habe dort dann so eine Rolle eingenommen als Moderator, dass man die Partei Company C und auch die Partei Company S dann zusammenbrachte"
[71] "Es wird so sein, dass ich halt als Person der Enabler bin. Also ich werde derjenige sein, der im Grunde genommen zulässt und managed, dass die Connection zwischen Company S und unserem Partner stattfindet."
[72] "wo nun die Möglichkeit kam, war es dann so, dass ich den organisatorischen Teil übernommen habe, den Kontakt mit euch [dem Forschungsteam], Company T hergestellt habe"
[73] "Dann haben wir ein Angebot, das ist über mich gelaufen, das hatte ich angefertigt, ein Vorschlag. Da kam dann noch der Gegenvorschlag seitens Company P"
[74] "Und ich werde – wenn die Plattform dann einst in einer Art und Weise finalisiert ist und zu Stand gekommen ist – mich sicher auch weiterhin und zukünftig dort austauschen. Ich glaube auch das Netzwerk dann von mehr Firmen auch erweitern zu können"
[75] "Einfach Gedanken gemacht, wo haben wir welche Anlage oder was ist nicht komplett ausgelastet. Was haben wir im Betrieb, was wir nicht zu 100% im Einsatz haben"

[76](interview M2, line 304-308). Further considerations were related to management approval and decision making "could one, for example, also put an advertisement on a ship? I can't give that to a staff member - yes, you can decide that. There are decision-making issues that have to come to me, or even have to go to the board of directors, where leadership is needed." [77](interview E1, line 205-208). Similarly, the need to evaluate opportunities early on, was highlighted "That is certainly a management task for me, to filter and observe that there is also more quality - yes, more quality - above all simply the importance of sharing from the start, that is good" [78](interview E1, line 330-332) and "I was able to do the first rough assessment myself, yes, that should actually be feasible to 90%" [79](interview M1, line 16-17)

Quite simply, management time is required to kick-start sharing projects since they run outside of the daily business of their respective organization with processes yet to be established: "If it's something new, it gets a new process and then it's right down to the managing director level, who does it a couple of times first, until it settles in" [80](interview T, line 246-248) and "In the beginning it was really something on my shoulders alone, where I did a lot of exchanges, all the phone calls. And then I really thought about who could play a role, who could offer us added value in a sharing project, for example with Company C" [81](interview E1, line 149-151). Quite simply "I just organise it" [82](interview M1, line 255), "And in the beginning it was still done by me" [83](interview T, line 93-94) and "But in the beginning, where it's very different, I

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[76] "ich benötige 1-2 Mal pro Jahr hier ein paar Ameisen [Stapler], Miete ist teuer, gibt es da nicht eine Alternative. Ich brauche immer mal wieder Wagen für die Inventur. Wie gesagt, man könnte Teile messen, dass wir noch eine genauere Messungen haben, usw. Das waren so die ersten Gedanken, die wir hatten im Bezug auf das Projekt Sharing"

[77] "könnte man z.B, auch eine Schiffswerbung, Werbung auf einem Schiff anbringen? Das kann ich nicht einem Mitarbeiter mitgeben – ja, das kannst Du entscheiden. Es gibt so Entscheidungsthemen, die an mich gelangen müssen, oder sogar noch in den Verwaltungsrat müssen, wie auch immer, wo es dann Führungsarbeit benötigt."

[78] "Das ist sicher eine Führungsaufgabe, von mir das zu Filtern zu Beobachten, das es auch mehr Qualität – ja, also mehr Qualität – vor allem einfach die Wichtigkeit vom Sharing vom Start ist das gut."

[79] "die erste Grobbeurteilung konnte ich selbst machen, ja, das sollte eigentlich machbar sein zu 90%"

[80] "Wenn es etwas Neues ist, bekommt es einen neuen Prozess und dann ist das gleich auf Stufe Geschäftsführer, der das erstmal ein paarmal macht, bis es sich eingespielt hat."

[81] "Am Anfang was es wirklich so etwas allein auf meinen Schultern, wo ich viel so Austausch auch machte, alle Telefonate. Und dann habe ich mich wirklich Gedanken gemacht, wer da eine Rolle spielen könnte, wer könnte uns hier in einem Sharingprojekt einen Mehrwert bieten, zum Beispiel mit Company C."

[82] "ich organisiere das einfach"

[83] "Und zu Beginn lief das noch über mich"

will continue to do it that way" [84](interview M1, line 352-353). Sharing projects are clearly distinguished from regular daily business: "that's the whole idea behind it. Otherwise it would be a normal contract manufacturing order, a normal service that we would provide" [85](interview M1, line 87-89).

One expert particularly stressed that management needs to ensure resource allocation to the sharing project in its early stages: "So actually freeing up the resources, the voluntary resources from everyday life and also empowering the staff." [86](interview E1, line 138-139) and more specifically "And there, as a manager, I brought in my bachelor's student" [87](idem, line 32-33) continuing "I don't have to do all that myself, I enable you, I give you the possibility to take out certain hours for this" [88](idem, line 154-155). This goes hand in hand with creating the necessary urgency and assigning priority to sharing projects: "I can well imagine that in the future I will sensitise all team leaders and department heads to this." [89](interview M2, line 264-265) and "that is certainly also a point that I, as a leader, had to bring this willingness into the organisation, and this had to be fundamentally given. Otherwise it can't work at all" [90](interview E1, line 187-189).

Later on, management attention is no longer required and the sharing activities are delegated to specific roles or existing functions within the organization (cf. chapter 4.4.3): "That works if it's recurring. You can say, well, I'll get involved until it's up and running, then I can delegate it away" [91](interview T, line 248-250), confirmed by the other sharing party "It went through me in the same way and then it was passed on. The price was set first, and now it runs on its own. I have nothing more

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[84] "Aber so am Anfang, wo das sehr unterschiedlich ist, werde ich das weiterhin so durchführen."

[85] "das ist ja auch eben der Sinn dahinter. Sonst wäre es ja ein normaler Auftrag der Lohnfertigung, eine normale Dienstleistung, die wie erbringen würden."

[86] "so eigentlich die Ressourcen, die freiwilligen Ressourcen aus dem Alltag auch wirklich freizuräumen und auch die Mitarbeitenden zu befähigen."

[87] "Und dort habe ich als Führungskraft, mein Bachelorstudent reingenommen."

[88] "Das muss nicht ich alles selbst tun, ich befähige euch, ich gebe euch die Möglichkeit, hierfür gewisse Stunden herauszunehmen,"

[89] "Ich kann mir gut vorstellen, dass in Zukunft, dass ich da alle Teamleiter und Bereichsleiter etwas darauf sensibilisiere."

[90] "Und das ist sicher auch ein Punkt, den ich als Führungskraft, diese Bereitschaft eben in die Organisation bringen musste, und diese grundlegend gegeben sein musste. Sonst kann das gar nicht funktionieren."

[91] "Da kann man sagen, gut, ich involviere mich, bis es läuft, danach kann ich es wegdelegieren."

to do with it" [92](interview T, line 233-235). Another expert recognizes the effort needed for this delegation "you really need a certain self-discipline and reliability. That goes under self-leadership; also getting people on board and getting staff on board to whom I had also delegated certain tasks" [93](interview E1, line 129-131).

4.3.2 Involving Specific Members of the Organisation

Most experts agreed that sharing activities are best delegated to the line functions of their respective organisation: "then they could simply delegate it to the line" [94](interview T, line 194-195) or more specifically "a sharing that goes very specifically to one area. (…) The head of the department could do it directly himself" [95](interview M1, line 350-352). Which specific line function obviously depends on the sharing project, e.g. for measurement devices "The [employee] who is responsible for the measuring equipment does that directly with the others" [96](interview M1, line 364-365) and "the administrator of the measuring equipment, who manages it himself" [97](idem, line 429-430). Similarly, in the case of marketing expertise "But it was actually the case that from the moment marketing emerged as the focus, ES [head of marketing] took over the lead" [98](interview E2, line 275-276) and "So purely from the focus topic of marketing, I tried to hand this over to ES as the lead at this point" [99](idem, line 259-260). Even in transport services, the sharing implementation was delegated to the relevant roles: "we had to convince our forwarding agent afterwards that we would do it now" [100](interview T, line 185-186) with the result that "Because the person

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[92] "Da ist es genauso erst über mich gelaufen und dann so weitergegeben. Den Preis erst noch festgelegt, jetzt läuft das von alleine. Ich habe nichts mehr damit zu tun."

[93] "da braucht es auch wirklich eine gewisse Selbstdisziplin und Verlässlichkeit. Das geht unter Selbstführung; auch die Leute mit ins Boot zu holen und Mitarbeiter mit ins Boot zu holen, an die ich gewisse Aufgaben auch delegiert hatte."

[94] "da konnte man es dann einfach in die Linie delegieren."

[95] "eine Ressource, ein Sharing, das sehr spezifisch auf einen Bereich geht. (…) Könnte der Bereichsleiter das direkt selbst durchführen."

[96] "Das macht dann eben der [Mitarbeiter], der für die Messmittel zuständig ist, der macht das direkt mit den Anderen."

[97] "der Verwalter des Messmittel, der managed das so grad selbst."

[98] "von dem Zeitpunkt, wo sich das Marketing als Fokus herauskristallisiert hatte, ES dies federführend übernommen hatte"

[99] Also rein vom Fokusthema Marketing habe ich versucht zu diesen Zeitpunkt dies ES federführend zu übergeben

[100] "Und dann mussten wir dann unseren Speditionsverantwortlichen nachher überzeugen, dass wir das jetzt machen."

responsible for the transport department, the chauffeur, knows it, so now it has simply become a routine" [101](idem, line 97-98). Other potential roles included "lean manager" [102](interview M2, line 272), "head of technology" [103](idem, line 410), "people like our head of toolmaking, maintenance" [104](idem, line 269-270) and even "people in production" [105](idem, line 271). One expert highlighted the benefit from delegation into the line organisation as increasing the width of support to multiple stakeholders, "I don't have to be present there for a forklift sharing, you do it, make the contact! So I think there are also several multipliers for such projects," [106](interview E1, line 131-133).

In some cases, the need for dedicated members of staff was argued, mainly to maintain some focus on future sharing opportunities "Then there would have to be a responsible person who manages these projects a little bit, so that they know what I'm allowed to give out or rent out and what I'm not." [107](interview T, line 290-292), add innovation "the bachelor student with his open-minded and somewhat external view" [108](interview E1, line 152-153) or not to disturb the core organisation "the people involved in a new sharing project can be kept to a minimum" [109](interview T, line 273-274). Only few comments addressed the operational implementation of sharing for these functions where some experts implied an ongoing management oversight: "there was an effort for you. We had to make a definition of the whole thing so that it would always be handled in the same way for all employees. The human resources department had a lot of work to do. Yes, and we then logically have to come to the [working] times and everything" [110](interview P, line 152-155). Or specifically on the initial cost "To create the programme, we calculated that it took Alexander [the measurement

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[101] "Weil der, der verantwortlich ist für die Transportabteilung, der Chauffeur weiss es, so hat sich das jetzt einfach eingespielt."

[102] "Lean Manager"

[103] "Leiter in der Technik"

[104] "Leute sein, wie unser Leiter im Werkzeugbau, Instandhaltung"

[105] "Leute in der Produktion"

[106] "Ich muss da nicht präsent sein für ein [Gabler-]Stapler-Sharing, mach du das, nimm den Kontakt auf! So glaube ich, gibt es auch mehrere Multiplikatoren für solche Projekte"

[107] "Dann müsste es eine verantwortliche Person geben, die diese Projekte ein wenig managed, damit die auch weiss, was darf ich rausgeben oder vermieten und was nicht"

[108] "beispielsweise der Bachelorstudent mit seiner open-minded und etwas externen Sicht"

[109] "die involvierten Personen bei einem neuen Sharingprojekt möglichst gering gehalten werden können"

[110] "Für Dich gab es einen Aufwand. Wir mussten eine Definition von dem Ganzen machen, damit man's dann immer gleich handhabt, bei allen Mitarbeitern. Die Personalabteilung hatte da vor allem Aufwand. ja, und wir müssen dann logischerweise zu den [Arbeits]Zeiten kommen und alles."

technician] about 4 hours to programme this" [111](interview M1, line 64-65) or monthly process "it was also agreed that we would always take a part out in the middle of the month and at the end of the month. I send it to them, it is numbered, measured and they send it back to me" [112](interview M2, line 46-48).

4.3.3 Support from Third-Party Stakeholders

As with other strategic initiatives, companies attributed different level of importance to the support and involvement of third-party stakeholders in enabling sharing projects. Especially for B2B sharing as such, the external input idea was considered key: "That was really the basic idea and the project from you" [113](interview E2, line 69) and "the impetus came via an online advertisement of the Lucerne School of Business" [114](interview E1, line 6-7). Triggering the relevant stakeholders from outside early was also mentioned "Then BF and ES got to know about it during the Virtual Factory meeting" [115](interview E2, line 34-35) while the same expert would have favoured even more input and guidance at the beginning "how could one have given more of a lighthouse project or something in an early phase? Or maybe focus more in one direction from the beginning" [116](idem, line 319-321).

Similarly, the ongoing outside support for following-through on first sharing projects was appreciated, namely "the guideline that you built up, with these checklists and so on, is incredibly valuable" [117](interview E2, line 227-228) and "the interest, the curiosity, and the readiness happened through you, who had written the paper and the virtual factory, which was the means of transport, and then also communicated that further" [118](idem, line 62-64). The same expert critically acclaims some pressure and

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[111] "Um das Programm zu erstellen, haben wir mit etwa 4 Stunden Aufwand gerechnet, die Alexander [der Messtechniker] dafür brauchte, dies zu programmieren"

[112] "vereinbart, dass wir immer Mitte Monat und Ende Monat ein Teil herausnehmen. Ich schicke ihnen das dann zu, es wird nummeriert, gemessen, und sie schicken es mir dann wieder zurück"

[113] "Das war wirklich mal grundsätzlich die Idee und das Projekt von euch"

[114] "zu erst ist der Anstoss via eine online-Werbung der HSLU gekommen"

[115] "Dann haben BF und ES dies während dem Meeting der Virtuellen Fabrik kennengelernt."

[116] "in einer frühen Phase mehr noch ein Leuchtturmprojekt oder etwas geben können. Oder vielleicht doch von Anfang an mehr fokussieren in eine Richtung."

[117] "der Leitfaden, der von euch aufgebaut worden war, mit diesen Checklisten und so, der ist unglaublich wertvoll."

[118] "das Interesse, die Neugierde, und die Bereitschaftshaltung ist passiert durch euch, die das Papier verfasst hatten und die virtuelle Fabrik, die das Transportmittel war, und das dann auch weiterkommuniziert hatte."

perseverance throughout the project, imposed by external stakeholders "I almost had the impression that they tried to find something compulsively. So that one could get ahead in the project" [119](interview E2, line 309-310) and "I noticed that it had seeped away a bit, crumbled, yes. I don't mean that in a bad way. I noticed that people had to get their motivation together and rethink where to go from here" [120](idem, line 300-302). The action research originated collaboration was mentioned to have suitably supported the project from outside the industry partners, e.g. "I think you did a good job with the follow-up meetings. What is particularly praiseworthy, and we especially appreciated, is the support from you and Karina" [121](interview E2, line 331-333) and "established contact with you [the research team], Company T" [122](interview M2, line 76-77).

The use of a digital platform as external support was assessed quite differently by the experts. Some supported the use of a platform, e.g. "Otherwise borrowing or procuring machines will be much greater than if we have a network like this, which we can then perhaps also access via a platform" [123](interview E1, line 161-162) further projecting "And I will - once the platform has been finalised in a way and has come to a stand - certainly continue to exchange information there in the future" [124](idem, line 317-319). Predominantly, the experts were critical of such a platform and its usability, e.g. criticising its stand-alone character "it would be difficult, a sharing platform alone, as an isolated solution" [125](interview E2, line 481-482) or the need of data maintenance "Or that one then also enters this on the platform. Then it certainly has to be at relatively short notice" [126](interview E1, line 245-247). One expert especially indicated that

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[119] "ich hatte sogar fast den Eindruck, dass man dann halt versucht hat, zwanghaft etwas zu finden. Damit man quasi in dem Projekt weiterkommt."

[120] "da ist es dann etwas versickert, zerbröselt, ja. Das ist auch gar nicht böse gemeint. Da habe ich gemerkt, da mussten die Leute etwas ihre Motivation zusammennehmen, neu überlegen, wo gehen wir jetzt weiter"

[121] "Ich finde, ihr habt das schön dosiert, mit den Follow-Up Meetings. Was besonders lobenswert ist und wir besonders geschätzt haben ist die Unterstützung von Dir und Karina."

[122] "den Kontakt mit euch [dem Forschungsteam], Company T hergestellt habe."

[123] "Maschinen sonst ausleihen oder beschaffen wird das viel grösser, wie wenn wir so ein Netzwerk haben, das wir dann vielleicht über eine Plattform auch noch zugreifen kann"

[124] "wenn die Plattform dann einst in einer Art und Weise finalisiert ist und zu Stand gekommen ist – mich sicher auch weiterhin und zukünftig dort austauschen"

[125] "das es schwierig wird, eine Sharing-Plattform allein, als Insellösung dasteht"

[126] "Oder dass man das auf der Plattform dann auch einträgt. Dann muss es sicher relativ kurzfristig gehen"

although a platform had been created along the project, the sharing projects emerged from elsewhere: "So we uploaded it to the portal and entered it there. But DS didn't approach us as a result, but through a conversation with you [Sebastian], I think" [127] (interview M1, line 7-9), stating "that could also have worked via the portal" [128] (idem, line 14) and "The only pity was that the portal didn't work. I think that was a great pity, I'll say that now. After all, it had been specially set up. The question is whether it has a future" [129] (idem, line 279-281). He also expressed his expectations for a functional platform: "Just as I said with this platform. That's an important thing, that you build it up well, I'd say. And that the order processing is perhaps already defined there. That it is clear to you that you can charge for it according to time and effort or as an annual invoice. That this is perhaps already included in a fixed way, or as a default" [130] (interview M1, line 398-402).

4.4 The Transformation Requires Managerial Effort in Three Phases

When the timing of management action was cross-referenced with the three domains, a priority of management action emerged for each of the phases (cf. Figure 15): *before* a sharing transaction, management activity focused on investing time to identify potential resources for sharing (idle capacity or demand for resources) and to select potential partners for sharing. *During* the sharing transaction, the focus was on the design, adaptation, and implementation of processes and infrastructure in order to accommodate the sharing transaction. *After* one or several sharing transactions of the same resource, the focus turned to enabling and developing the organisation to embrace sharing more permanently, empowering the teams and staff to actively integrate sharing in their day-to-day routines.

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[127] "Also ins Portal hochgeladen, dort konkret eingetragen. DS kam aber nicht daraufhin auf uns zu sondern durch ein Gespräch mit Dir [Sebastian], so glaube ich."

[128] "hätte aber auch übers Portal funktionieren können"

[129] "Einzig schade war, dass das Portal nicht funktioniert hatte. Das fand ich sehr schade, sage ich jetzt mal. Wo man es doch extra aufgebaut hatte. Da ist die Frage, ob das so eine Zukunft hat."

[130] "Eben wie gesagt mit dieser Plattform. Das ist eine wichtige Sache, dass man das gut aufbaut, sage ich jetzt mal. Und dass man dort eben vielleicht auch mit der Auftragsabwicklung bereits definiert ist. Das für einen klar ist, ja nach Aufwand oder als Jahresrechnung kann man das verrechnen. Dass das vielleicht schon fixiert enthalten ist, oder als Vorgabe"
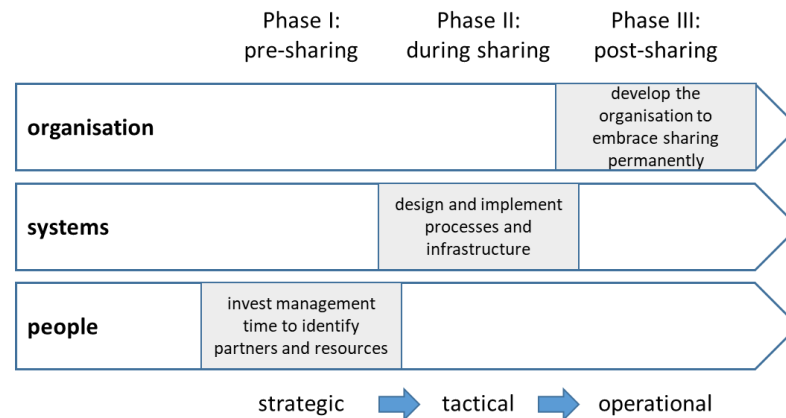
Figure 15 Focus of management action along three phases of sharing transactions (own illustration)

When cross-checking the codes, managers assigned a more strategic importance to the first phase, moving to tactical priority during the sharing itself and handing further sharing transactions of the same resource to an operational level thereafter, correlating with the three phases (cf. Figure 15).

4.4.1 Phase I: Identifying the Business Case

The initial phase of identifying sharing as a strategic opportunity is characterised by a long-term view of managers, "we assume that this is something that runs longer" [131](interview M1, line 142-143) or "I'm sure we'll keep in touch as time goes on" [132](interview E1, line 317) and "we knew that if there was a sharing theme here, then that would be something that would also be longer-term" [133](interview E2, line 197-198). Even more specifically on financials "a financial connection here, where the two companies are involved can certainly also be seen as causal in the time horizon" [134](interview E1, line 253-255) and time "So it's been four years for sure" [135](interview T, line 77).

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[131] "wir gehen davon aus, dass dies etwas ist, was länger läuft"

[132] "hier wird man sicher auch im Verlauf der Zeit dranbleiben"

[133] "Und darum wussten wir, dass wenn es hier ein Sharingthema gibt, dann ist das etwas, das auch längerfristig wäre."

[134] "hier eine finanzielle Verbundenheit, wo sich die beiden Firmen hineinbegeben ist sicher auch im Zeithorizont als kausal zu betrachten"

[135] "Also vier Jahre ist das sicher schon"

The sharing projects are framed by many experts within strategic innovation of their company, e.g. "for us, that's relatively normal. (…) For most people it's something completely strange, they've never even thought about doing it. But if you actually do it, then it's relatively normal. For the other businesses too, it's like a threshold that you kind of don't even think you could do that" [136](interview P, line 228-232). Clearly differentiated from daily business, "Sharing should not primarily be a commissioned relationship where the focus is on making as much profit as possible. It's about sharing" [137](interview T, line 262-264) and even with some ambiguity to its outcome "The question is, how does it work if it's a one-time thing? That is difficult, because you would have to say that we want to share more in the company and then I would have to set up such a sharing process so that when such a one-off, new thing comes along" [138](idem, line 250-253). One expert highlighted the need for sharing to be embedded into a larger initiative: "I think it would be difficult, a sharing platform alone, as an isolated solution. I think it should be like a part of something bigger" [139](interview E2, line 481-482) and "I noticed that such sharing projects never stand alone as sharing platforms, but are usually embedded in a larger whole. It was mostly about coworking spaces, events, university topics, industry topics, sustainability. The sharing theme is simply a part, a building block of the whole, where people have often suddenly found themselves on a completely different theme. But I would say that if people only clicked on the sharing platform, it wouldn't have come about at all." [140](idem, line 475-480).

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[136] "für uns ist das relativ normal. (…) Für die meisten ist das etwas völlig Merkwürdiges, die haben sich noch gar nie überlegt, ob man das machen könnte. Aber wenn man es eigentlich macht, dann ist es relativ normal. Für die anderen Betriebe auch, es ist wie eine Schwelle, die man irgendwie gar nicht daran denkt, dass man das machen könnte."

[137] "Das Sharing soll ja nicht primär ein Auftragsverhältnis sein, wo ein möglichst hoher Gewinn im Vordergrund steht. Sondern eben das Sharen."

[138] "wie funktioniert das, wenn es eine einmalige Sache ist? Das ist dann schwierig, da müsste man dann schon sagen, wir wollen in der Firma jetzt vermehrt sharen und dann müsste ich aber einen solchen Sharing-Prozess aufziehen, damit wenn eine solche einmalige, neue Sache kommt"

[139] "dass es schwierig wird, eine Sharing-Plattform allein, als Insellösung dasteht. Ich glaube das müsste so wie ein Teil von etwas Grösserem sein"

[140] "Ich habe festgestellt, dass solche Sharingprojekte eigentlich nie alleinstehend als Sharing-Plattformen dastehen, sondern meist eingebettet sind in ein grösseres Ganzes. Da ging es meistens um Coworking-Spaces, Veranstaltungen, um Hochschulthemen, um Industriethemen, Nachhaltigkeit. Das Sharingthema ist einfach ein Teil, ein Baustein von Ganzen drin, wo sich oftmals Leute über ein ganz anderes Thema plötzlich in dem Punkt gefunden haben. Wo ich aber behaupte, würden die Leute nur die Sharing-Plattform anklicken, dann wäre es gar nicht zu Stande gekommen."

The experts mention that sharing projects at this stage need to be embedded in a strategic process "that this is a topic that is present with us and that decisions will have to be made this year" [141](interview E2, line 398-399) and more detailed "But I do think that this has become somewhat anchored in our minds. (…) everything that is strategically approved later, where we develop further, is always a topic that finds a place in the management review" [142](idem, line 391-394) and complemented by "the impetus came via an online advertisement of the Lucerne School of Business, where we exchanged ideas in the management and said, yes, that could be exciting, however and for whatever reason" [143](interview E1, line 6-8).

To follow through, the experts indicated the need for strategic urgency to maintain focus on sharing as a business opportunity: "And I believe that I really have to keep at it, that we must not forget that" [144](interview E1, line 126-127) and "There are decision-making issues that have to come to me, or even have to go to the board of directors, however, where leadership is needed" [145](idem, line 206-208) or "In this respect, it is not the case that this has landed in our bottom drawer, but continues to enjoy a very high degree of topicality" [146](interview E2, line 399-401).

The need for management time to be invested at this stage was confirmed across the board (cf. chapter 4.3.1): "in the beginning it was still done by me, until something routine had settled in" [147](interview T, line 93-94) or "It went through me in the same way" [148](idem, line 233-234) and "If it's something new, it gets a new process and then it's right down to the managing director level, who does it a couple of times first, until it settles in" [149](idem, line 246-248). As another expert confirms "In order for this to be

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[141] "das ist ein Thema, das bei uns präsent ist und in diesem Jahr auch Entscheidungen getroffen werden müssen"

[142] "Aber ich denke schon, das hat sich ein wenig bei uns verankert. (…) alles was nachher strategisch abgenommen wird, wo man sich weiterentwickelt, das ist immer so ein Thema, das im Management-Review Platz findet"

[143] "Anstoss via eine online-Werbung der HSLU gekommen, wo wir uns in der Geschäftsleitung ausgetauscht hatten und sagten, ja, das könnte spannend sein, wie und warum auch immer."

[144] "Und ich glaube das muss nun wirklich auch von meiner Seite, da muss man dran bleiben, das darf man dann nicht vergessen"

[145] "Es gibt so Entscheidungsthemen, die an mich gelangen müssen, oder sogar noch in den Verwaltungsrat müssen, wie auch immer, wo es dann Führungsarbeit benötigt"

[146] "Insofern ist es bei uns nicht so, dass das bei uns in der untersten Schublade gelandet ist, sondern nach wie vor sehr hohe Aktualität geniesst"

[147] "zu Beginn lief das noch über mich, bis sich etwas Routine eingespielt hatte"

[148] "Da ist es genauso erst über mich gelaufen"

[149] "Wenn es etwas Neues ist, bekommt es einen neuen Prozess und dann ist das gleich auf Stufe

possible, it is clear that there needs to be a commitment, an OK, in the management, in leading functions, otherwise it won't work" [150](interview E2, line 282-284) and specifically "of course the personal ones. Especially me as a person." [151](idem, line 51) and "I will be the enabler as a person" [152](idem, line 412). As elaborated by another expert "That is certainly a management task for me, to filter and observe that there is also more quality - yes, more quality - above all simply the importance of sharing from the start, that is good" [153](interview E1, line 330-332) and "So also typical leadership tasks: Chairing meetings, moderating, translating, and what is feasible and what is not." [154](idem, line 203-204) adding "In the beginning it was really something on my shoulders alone, where I did a lot of exchanges, all the phone calls" [155](idem, line 149-150) as well as "an internal exchange, which we also had in the management" [156] (idem, line 111-112).

Much emphasis was put on identifying suitable resources and partners for sharing projects (cf. chapter 4.3.1). Looking at the search for suitable resources: "what could be shared at all? What kind of resources, what types of resources?" [157](interview E1, line 15-16) and " you would have to define for yourself what you want to share" [158](interview T, line 289) with some specifics identified during this phase: "We found the transport there, or a joint trade fair appearance" [159](interview M1, line 455) or "One was the measuring instruments, the other the transport, where we got together" [160](interview T, line 65-66) and "from renting out the meeting room, which is poorly utilised, to taking over transport services or carrying out measuring tasks for others"

Geschäftsführer, der das erstmal ein paarmal macht, bis es sich eingespielt hat"

[150] "Damit das möglich wurde, ist klar, da benötigt es in der Geschäftsleitung, in leitenden Funktionen ein Committment, ein OK, sonst geht das nicht."

[151] "natürlich die personellen. Vor allem mich als Person"

[152] "ich halt als Person der Enabler bin"

[153] "Das ist sicher eine Führungsaufgabe, von mir das zu Filtern zu Beobachten, das es auch mehr Qualität – ja, also mehr Qualität – vor allem einfach die Wichtigkeit vom Sharing vom Start ist das gut."

[154] "typische Führungsaufgaben: Sitzungsleitung, Moderator, Übersetzer, und was ist machbar, was nicht"

[155] "Am Anfang was es wirklich so etwas allein auf meinen Schultern, wo ich viel so Austausch auch machte, alle Telefonate"

[156] "internen Austausch, den wir in der Geschäftsleitung auch geführt hatten"

[157] "was könnte man denn überhaupt sharen? Welche Form von Ressourcen, welche Arten von Ressourcen"

[158] "selbst definieren, was will man überhaupt sharen"

[159] "Der Transport haben wir da gefunden, oder ein gemeinsamer Messeauftritt."

[160] "Das eine war die Messgeräte, das andere der Transport, wo wir dann zusammen gekommen sind."

[161](idem, line 270-272). Similarly, from the demand side as well: "whether there was a need for batteries and accumulators that Company S could use in some form" [162](interview E2, line 87-88) and "It could be a battery, we have been asked in the past by several years, aren't there more sharing options for batteries. But that never really met with interest" [163](idem, line 67-69). This can be quite elaborate "We simply thought about where we have which system or what is not fully utilised. What do we have in operation that we don't use 100% of the time? We have about 8,000 gauges for special thread gauges. One of them quickly costs 300-400 francs. We use them maybe once a year. And maybe he can use them, borrow them for a day. Yes, that would be, that is actually very useful. That was simply the idea where we chose these things." [164](interview M1, line 191-196). One expert adding that even the question of products vs. services to be shared had to be explored: "because at the beginning we didn't really know whether it was about products that we wanted to share, or whether it was about a service, or whether it was about expert knowledge" [165](interview E2, line 80-82).

Similarly, the experts elaborated on the need to identify suitable sharing partners at this stage of the process where an existing, strategic network was considered imperative: "First there was the partnership. We've known each other for ages, our companies have been working together for ages" [166](interview T, line 51-52) confirmed by the sharing counterpart "We already had the exchange. And then, out of that, these small projects came into being, which increase the benefit of this exchange even more" [167](idem, line 337-339) and "The prerequisite here is that (a) you know each other first"

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[161] "Vermieten des Sitzungszimmers, was schlecht ausgelastet ist, der Transportdienste übernehmen oder Messaufgaben durchführen für andere"

[162] "gibt es ein Bedürfnis für Batterien und Akkus, die Shiptec in irgendeiner Form gebrauchen könnte"

[163] "Es könnte ein Akku sein, wir sind in der Vergangenheit schon von mehreren Jahren gefragt worden, gibt es denn für Akkus nicht mehr Sharingoptionen. Das ist aber nie wirklich so auf Interesse gestossen."

[164] "Einfach Gedanken gemacht, wo haben wir welche Anlage oder was ist nicht komplett ausgelastet. Was haben wir im Betrieb, was wir nicht zu 100% im Einsatz haben. Wir haben irgendwie 8.000 Lehren bei uns, für spezielle Gewindelehren. Da kostet eine schnell mal 300-400 Franken. Wir benutzen die vielleicht einmal im Jahr. Und der kann die vielleicht nutzen, einen Tag ausleihen. Ja, das wäre, das ist eigentlich sehr nützlich. Das was so einfach der Gedanke, wo wir diese Dinge ausgesucht haben."

[165] "zu Beginn ja nicht wirklich wussten, geht es in Richtung von Produkten, die wir sharen wollen, oder geht es um eine Dienstleistung, oder geht es um Expertenwissen"

[166] "da war zuerst die Partnerschaft. Wir kennen uns schon ewig, auch unsere Firmen arbeiten schon ewig zusammen"

[167] "Wir hatten den Austausch schon. Und dann aus dem heraus ist glaub diese kleinen Projekte entstanden, die den Nutzen von diesem Austausch noch vergrössern"

[168](idem, line 241). Specifically, the virtual factory was mentioned as such a network: "the origin had taken place in the virtual factory before it then went to the university and was first described in concrete terms within a meeting" [169](interview E2, line 30-32). Or referring to this research initiative "There were the first talks with other companies. And then we met outside of this sharing project. And I think that is one of the first steps where you really have to get to know each other" [170](interview E1, line 11-13).

A key source for partnerships was identified by geographic proximity underlining the need for personal relationships: "other companies in the vicinity where people simply know each other. You know the employees there and then ask them" [171](interview T, line 380-381) and "we could ask neighbouring companies if they had a need" [172](interview P, line 6-7) and "I'll see what's in the region. It doesn't make much sense [to look further away]" [173](idem, line 43-44). Finally, the selection process in identifying the right partnerships was commented for this phase, "if you really want to create a partner within the framework of sharing, there has to be a more frequent exchange, not just a one-off" [174](interview E1, line 332-334) and "then we were like on the opposite side. Company C is looking for resources in this area, Company S basically has something here" [175](interview E2, line 221-223). Finding the right partner can be a challenge "the first phone calls were already 'what do you want?! How does that work?'. So that was very sceptical" [176](interview P, line 248-249) to be overcome "with one of the 6-7 [companies] it usually worked out" [177](idem, line 354).

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[168] "was hier die Voraussetzung ist, dass man sich (a) zuerst kennt."

[169] "Ursprung in der Virtuellen Fabrik genommen hatte, bevor es dann an die Hochschule ging und innerhalb eines Meetings erst konkret und beschrieben worden war"

[170] "die ersten Gespräch mit anderen Firmen. Und da hat man sich dann mal getroffen auch ausserhalb von diesem Sharingprojekt. Und ich glaube, dass ist einer der ersten Schritte, wo man sich wirklich mal beschnuppern können muss"

[171] "Unternehmen in der Nähe, wo man einander einfach kennt. Man kennt die Mitarbeitenden von dort und fragt die dann an."

[172] "wir könnten ja mal die Nachbarunternehmen anfragen, ob sie Bedarf haben"

[173] "mal geschaut, was so in der Region ist. Macht ja nicht so sinn [weiter weg zu suchen]."

[174] "wenn man wirklich einen Partner schaffen will im Rahmen von einem Sharing, muss da ein regerer Austausch stattfinden, nicht nur einmalig"

[175] "Und da waren wir dann wie so auf der Gegenseite. Company C sucht Ressourcen in dem Bereich, Company S hat hier grundsätzlich etwas"

[176] "die ersten Telefonanrufe waren schon «was wollen Sie?! Wie geht das?». Also das war sehr skeptisch"

[177] "bei einer der 6-7 [Firmen] hat das dann meistens mal geklappt"

4.4.2 Phase II: Enabling the Sharing Process

For sharing transactions to yield the cost benefits on either side of the giving and receiving ends of a resource, a due process and supporting IT infrastructure are important, as several interviewees confirm. Even more importantly, if a resource is shared frequently between the same or different partners, a smooth administrative process appears to be much in focus.

The tactical management activities were illustrated to be somewhere between strategy and operations: "In the beginning, logically, you can invest something. Then you need one thing or another, you have to screw it on or do some convincing, depending on the situation. But afterwards, it has to work on its own and the people in the company have to be behind it, think it's great, participate in it. And the other thing is that it has to fit in financially, economically." [178] (interview T, line 415-419) illustrating "Not very much, of course. If that's 2,3,4,5 trips per month, 5 pallets. We are on the road with two trucks all week" [179] (idem, line 150-151) and "what benefit do we get from it? After a few months, maybe a year, we can make a statement: hey, this has already helped us. We have improved this and that, been able to optimise this and that, and so on" [180] (interview M2, line 192-195). Often, these were related by the experts to other tactical measures, e.g. "allows you to improve the process of machine control, material, etc. in a superordinate way" [181] (interview M2, line 154-155) and "That was classic social plan work. We didn't have a social plan at the time. But it was actually a social plan measure, quite clearly" [182] (interview P, line 285-287).

A strong emphasis was placed on the recurring characteristics of sharing activities, which needs to be ensured in this phase: "and also that it is recurring" [183] (interview T, line 246) and "recurring makes more sense. I can also imagine that

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[178] "Am Anfang, logisch, kann man etwas reininvestieren. Das braucht dann das eine oder andere, man muss dran schrauben oder Überzeugungsarbeit leisten, je nach dem. Aber nachher muss es von alleine funktionieren und auch die Leute in der Firma müssen selbst dahinter stehen, das toll finden, da mitmachen. Und das andere ist, es muss vom finanziellen reinpassen, Wirtschaftlichkeit."

[179] "wenig natürlich. Wenn das pro Monat 2,3,4,5 Fahrten sind, 5 Paletten. Wir sind mit zwei LKWs unterwegs, die ganze Woche"

[180] "was haben wir für einen Nutzen davon? Da können wir nach ein paar Monaten, vielleicht einem Jahr eine Aussage treffen: hey, das hat uns schon was gebracht. Wir haben dies und jenes verbessert, hier dies und jenes optimieren können, usw."

[181] "insgesamt den Prozess der Maschinensteuerung, vom Material, usw. übergeordnet zu verbessern"

[182] "klassische Sozialplanarbeit. Wir hatten nicht einen Sozialplan zu dem Zeitpunkt. Aber es war eigentlich eine Sozialplanmassnahme, ganz klar"

[183] "und auch dass es wiederkehrend ist."

better" [184](idem, line 485). This is also related to the character of the sharing project "We look at the piece time, how long is it on, the piece time has of course been checked and we follow up whether it really fits like that. So once, and then with the repetition it fits" [185](interview M1, line 271-273) or "but then he also clearly signalled that he would like to approach us again in a next step, so that we can break the spikes" [186](interview E1, line 314-315), specifically "A certain continuity, that's what you need, of course, that's perhaps still a great art" [187](idem, line 123-124).

The experts illustrated the need to adjust processes, IT infrastructure and other systems in this phase of enabling the sharing transaction within their organisation. The process characteristics are most apparent in a well-established sharing cooperation for transport capacity: "it also has to be standardised, the process" [188](interview T, line 269), "afterwards, it has to work on its own" [189](idem, line 417-418) and "then it's easier to establish a simple process that's not too extensive, just in the formalities" [190](idem, line 241-242). Elaborating in detail "And now I no longer have anything to do with it. An order comes to our order office. They record the transport order with the corresponding details. And internally, too, everyone now knows how it has to be done. Because the person responsible for the transport department, the chauffeur, knows it, so now it has simply become a routine" [191](interview T, line 94-98); confirmed by the sharing counterpart "the process that deviates somewhat from the standard. We also had to go through it first. Also with the contact persons from Company T, for whom it was also new. And when they realised, OK, this is going well now, there are no friction points, everything is organised, then they could simply delegate it to the line" (idem,

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[184] "wiederkehrend macht schon eher Sinn. Das kann ich mir auch besser vorstellen."

[185] "wir schauen von der Stückzeit her, wie lange ist er dran, die Stückzeit ist natürlich überprüft worden und wir verfolgen, ob das wirklich so passt. Also einmalig, und dann bei der Wiederholung passt das dann ja"

[186] "Er hat dann aber auch klar signalisiert, dass er aber gerne in einem nächsten Schritt wieder auf uns zukommen möchte, dass wir die Spitzen brechen können"

[187] "Eine gewisse Kontinuität, das braucht es natürlich, das ist vielleicht noch eine grosse Kunst"

[188] "muss es aber auch standardisiert werden, der Prozess"

[189] "nachher muss es von alleine funktionieren"

[190] "dann ist es einfacher, einen simplen Prozess zu etablieren, der nicht allzu umfangreich ist, gerade eben in den Formalitäten"

[191] "Und jetzt habe ich damit gar nichts mehr zu tun. Da kommt ein Auftrag an unser Auftragsbüro. Die nehmen den Transportauftrag auf mit den entsprechenden Details. Und auch bei uns intern wissen jetzt alle, wie das zu laufen hat. Weil der, der verantwortlich ist für die Transportabteilung, der Chauffeur weiss es, so hat sich das jetzt einfach eingespielt."

line 191-195). This translates into the process execution, "then do you think there's a tour plan where you're going? Then we'll see that it fits and then he'll bring it over" [192](interview T, line 116-117), adjusting systems respectively: "it's actually a normal job" [193](idem, line 103), "There is always simply an invoice. There is an order, there is a delivery note, which is given with the goods, and then it is automatically included in the invoice" [194](idem, line 222-223) while "We do not enter the transports for customers as an order. The system automatically adds the transport surcharge. And with Tobias, we just make an order. That means transport" [195](idem, line 108-110).

Similar process features are apparent in the case of personnel sharing: "we then logically have to come to the [working] times and everything. Most of them all have a time recording system. And then you just get that delivered at the end of the month" [196](interview P, line 155-157) adding "as long as they are employed by us, all social security runs through us, our parameters apply" [197](idem, line 513-514) through to the invoicing process "because they remain employed by us and we invoice the company. Will that is then a creditor, that is not in the staff. Because insurance and social benefits are all handled here with us. You have to monitor that" [198](idem, line 140-142). Likewise, the 3D measurement sharing is described by both parties along a due process: "we would always take a part out in the middle of the month and at the end of the month. I send it to them, it is numbered, measured and they send it back to me" [199](interview M2, line 46-48) and "We quickly agreed by email on the easiest way to do it. Then it was simply agreed that we would send 1-2 numbered parts per month (we started with

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[192] "dann gibt es glaub noch einen Tourenplan, wo ihr fix hinfährt? Dann schauen wir das es passt und dann bringt er es noch vorbei"

[193] "das ist eigentlich ein normaler Auftrag"

[194] "es gibt immer einfach gleich eine Rechnung. Eben, es gibt einen Auftrag, es gibt daraus einen Lieferschein, den man mit der Ware mitgibt, dann fällt das automatisch in die Rechnungsstellung"

[195] "die Transporte für Kunden erfassen wir nicht als Auftrag. Das macht das System automatisch, dass der Transportzuschlag hinzugefügt wird. Und beim Tobias machen wir halt einen Auftrag. Das heisst, Transport."

[196] "wir müssen dann logischerweise zu den [Arbeits]Zeiten kommen und alles. Die meisten haben alle ein Zeiterfassungssystem. Und dann bekommt man das einfach zugestellt, ende Monat."

[197] "solange sie bei uns im Angestelltenverhältnis sind, laufen sämtliche Sozialversicherungen über uns, es gelten unsere Parameter."

[198] "sie bleiben ja weiterhin bei uns beschäftigt und wir stellen Rechnung an die Firma. Will das ist ja dann ein Kreditor, das ist ja nicht im Personal. Weil Versicherung und Sozialleistungen laufen alles hier bei uns. Das muss man dann halt überwachen"

[199] "wir immer Mitte Monat und Ende Monat ein Teil herausnehmen. Ich schicke ihnen das dann zu, es wird nummeriert, gemessen, und sie schicken es mir dann wieder zurück"

1). And if there was anything special, for example a new cheek, we would mention it in an accompanying letter, that it was a brand new part or a test or something. So it's really simple. Package, wrap, send, then it comes back after a week, 1½. Then you can look at it again, maybe meet; has anything changed or is it still the same?" [200](idem, line 355-361). The clear process and pragmatism is confirmed by the sharing counterpart: "they send us the parts without paper, simply to my hand. I pass it on and we send it back to Mr Huber. And then we simply record the number of measurements and will issue an invoice at the end of the year" [201](interview M1, line 40-42) and ". Then there was the matter of payment, how do we want to handle it? Because the goal is to make it as simple as possible" [202](idem, line 33-35) adding, "they would like an annual invoice. And then we said, well, we'll just count it and then settle it at the end of the year" [203](idem, line 227-228).

More broadly, some experts argued that sharing in itself (i.e. the three phases of initialization, execution and organizational transformation) require a process by itself, e.g. "And if you see that there is nothing, then you start looking [for sharing] at the same time." [204](interview P, line 340-341), also supported by "that you have a clear process description for a sharing business area, how it runs" [205](interview M1, line 327-328) illustrating "We now have an order, we have to check whether we have all the measuring equipment ready. The person responsible for the measuring equipment says - oh, no, we don't have that, I have to organise it! Then he phones around to see if the [other] person has it in stock to lend. In the best case, yes, he sends it, and when we have finished the job, we send it back. And if no one has it, then we try to buy it"

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[200] "Wir haben rasch per E-Mail vereinbart, wie wir es am einfachsten machen können. Dann wurde einfach vereinbart, dass wir 1-2 nummerierte Teile hinschicken pro Monat (wir haben mit 1 angefangen). Und wenn dann irgendwas Spezielles sein sollte, z.B. eine neue Wange, dass man das in einem Begleitbrief erwähnen, dass es ein ganz neues Teil ist oder ein Test oder so. Also wirklich einfach. Paket, einpacken, schicken, dann kommt's nach eine Woche, 1½ wieder zurück. Dann kann man es noch einmal anschauen, vielleicht sich treffen; hat sich irgendwas geändert oder ist es immer noch gleich?"

[201] "schicken uns die Teile ohne Papier, einfach zu Handen von mir. Ich gebe das weiter und wir schicken das dann wieder zurück zu Handen von Herrn Huber. Und dann erfassen wir einfach die Anzahl der Messungen und werden Ende Jahr eine Rechnung ausstellen"

[202] "Dann war noch wegen der Bezahlung, wie wollen wir das überhaupt abhandeln. Weil das Ziel ja auch ist, dass man das möglichst einfach macht"

[203] "hätten gerne eine Jahresrechnung. Und dann haben wir gesagt, gut, dann zählen wir das einfach und verrechnen es dann Ende Jahr."

[204] "Und wenn man sieht, da ist nix, dann fängt man gleichzeitig an mit der Suche [für Sharing]."

[205] "für einen Geschäftsbereich Sharing einen klaren Prozessbeschrieb hat, wie das dann abläuft"

[206](idem, line 369-373). Further expanding into new sharing opportunities, with a focus on cost and resource use "You said, from renting out the meeting room, which is poorly utilised, to taking over transport services or carrying out measuring tasks for others. You would almost have to find a process that fits everything. So that the people involved in a new sharing project can be kept to a minimum." [207](interview T, line 270-274)

In support of the processes, also IT infrastructure and (software) systems were adjusted in this phase, predominantly concerned with compatibility of existing tools and technical standards: "2D / 3D model, it's about the technical conditions, circumstances" [208](interview M2, line 17), "what kind of files do we need? Do we have the right files, do we need a STEP file, a DX file" [209](idem, line 12-13) summarizing "we actually had everything at hand. I would say that every technical company of our size has an ERP system, and we have a system for 3D data where we actually have everything stored. So we actually have all that at our fingertips at any time, so it doesn't take much effort" [210](idem, line 23-26). This was confirmed by its sharing counterpart: "It's just a CAD model, just a STEP file, for example, containing the CAD model" [211](interview M1, line 48-49) and "Exactly, that's actually a common thing, these 3-D models, there are certainly 2-3 file types. That's actually common practice, it actually works well" [212](idem, line 54-55). Also procedural software support for automation was addressed "you didn't have to do any special programming or anything like that. It can

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[206] "Wir haben jetzt einen Auftrag, da wird überprüft, haben wir alle Messmittel bereit. Sagt der Messmittelverantwortliche – oh, nein, das haben wir nicht, das muss ich organisieren! Dann telefoniert er rum, ob der [Andere] das bei sich an Lager hat zum Ausleihen. Im besten Fall ja, der schickt das, und wenn wir den Auftrag fertig haben, schicken wir es wieder zurück. Und wenn das keiner hat, dann schauen wir, dass wir es kaufen."

[207] "Du hast gesagt, vom Vermieten des Sitzungszimmers, was schlecht ausgelastet ist, der Transportdienste übernehmen oder Messaufgaben durchführen für andere. Da müsste man fast irgendwie einen Prozess finden, der für alles passt. So dass die involvierten Personen bei einem neuen Sharingprojekt möglichst gering gehalten werden können."

[208] "2D- / 3D-Modell, da geht es um die technischen Voraussetzungen, Gegebenheiten"

[209] "was braucht's da für Dateien? Haben wir die richtigen Dateien, braucht es eine STEP-Datei eine DX-Datei"

[210] "eigentlich alles zur Hand. Ich sag' mal jeder technische Betrieb in unserer Grösse, der ein ERP-System hat, und wir haben ein System für 3D-Daten, wo wir eigentlich alles hinterlegt haben. Also, all das haben wir eigentlich alles zu jedem Zeitpunkt griffbereit, da braucht es keinen grossen Aufwand"

[211] "Das ist einfach ein CAD Modell, einfach eine STEP-Datei, z.B., worin das CAD Modell enthalten ist"

[212] "genau, das ist eigentlich eine übliche Sache, diese 3-D Modelle, da gibt es sicher 2-3 Dateiarten. Das ist eigentlich gang und gäbe, das funktioniert eigentlich gut."

be mapped directly like that." [213](interview T, line 114-115) and "We do not enter the transports for customers as an order. The system automatically adds the transport surcharge. And with Tobias, we just make an order. That means transport" [214](idem, line 108-110). In some cases investing resources to adjust systems accordingly: "we calculated that it took Alexander [the measurement technician] about 4 hours to programme this" [215](interview M1, line 64-65). Again, the potential use of a platform was contemplated "So we uploaded it to the portal and entered it there" [216](interview M1, line 7-8) and "Just as I said with this platform. That's an important thing, that you build it up well, I'd say. And that the order processing is perhaps already defined there. That it is clear to you that you can charge for it according to time and effort or as an annual invoice. That this is perhaps already included in a fixed way, or as a default" [217](idem, line 398-402).

4.4.3 Phase III: Developing the Organisational Mindset

Once sharing has proven to be an attractive alternative to ownership, managers mentioned that they need to engage more members of their staff for themselves to seize future opportunities for sharing. This requires the respective roles in the organisation to become aware of sharing as an alternative to a resource purchase and to identify idle capacity as an opportunity to offer such a resource to a third party through sharing.

The operational focus in this phase becomes particularly apparent in the short-term activities mentioned by the experts: "where the shoe pinches, where concrete resources are needed in the context of sharing, it has to happen faster" [218](interview E1, line 242-243), and elaborates "Sure, you can look at it that way. I say, yes then get the

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[213] "keine speziellen Programmierungen vornehmen, oder sowas. Das lässt sich direkt so abbilden"

[214] "die Transporte für Kunden erfassen wir nicht als Auftrag. Das macht das System automatisch, dass der Transportzuschlag hinzugefügt wird. Und beim Tobias machen wir halt einen Auftrag. Das heisst, Transport."

[215] "4 Stunden Aufwand gerechnet, die Alexander [der Messtechniker] dafür brauchte, dies zu programmieren"

[216] "Also ins Portal hochgeladen, dort konkret eingetragen."

[217] "Eben wie gesagt mit dieser Plattform. Das ist eine wichtige Sache, dass man das gut aufbaut, sage ich jetzt mal. Und dass man dort eben vielleicht auch mit der Auftragsabwicklung bereits definiert ist. Das für einen klar ist, ja nach Aufwand oder als Jahresrechnung kann man das verrechnen. Dass das vielleicht schon fixiert enthalten ist, oder als Vorgabe."

[218] "da wo der Schuh drück, da wo es konkrete Ressourcen im Rahmen von einem Sharing braucht, dann muss es schneller gehen"

forklift for 2 weeks, and then just bring it back, and don't break it. And then that's probably the end of it. And then maybe it happens every year and at some point you have to say, donate something for the kitchen equipment for the new social room" [219](idem, line 296-299). The same applied to the personnel sharing case, "when people are looking, when they are short of people, yes, it happens quite quickly" [220](interview P, line 352-353) and "it could be that I call them today and they say, no, we don't need anyone. And in two weeks they have an accident or a case of illness and then [they get in touch]. These can also be situations, opportunities where you need someone at short notice" [221](idem, line 355-357), illustrating "Of course, that also has something to do with our flexibility. We have loaned out staff now and then we see for 2-3 weeks that there's quite a high workload now, so we didn't just bring them in. Instead, we somehow brought in temporary staff for this period." [222](idem, line 206-209).

The operational level is further illustrated by pragmatism in implementation and its tools: "It was successful, it was kept simple [unwound]. The right people were simply called in, the exchange was quick" [223](interview M2, line 172-174) and "That was also a short thing. We quickly agreed by email on the easiest way to do it." [224](idem, line 355-356) illustrating "There will be an additional effort, but it is relatively small. There is something extra: you have to take out the two parts, one in the middle of the month, the second at the end of the month, and pack the two, label them, send them out. So I have the half hour per month of effort" [225](idem, line 363-366). Others confirm

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[219] "Klar, man kann es so sehen. Ich sage, ja dann hol den Stapler für 2 Wochen, und bringst ihn dann halt wieder, und machst ihn nicht kaputt. Und dann hat sich dies wahrscheinlich erledigt. Und dann kommt das vielleicht jedes Jahr und irgendwann muss man dann halt sagen, spendet uns für die Küchenausstattung für den neuen Sozialraum etwas."

[220] "wenn die Leute suchen, wenn sie zu wenig Leute haben, ja, dann geht das recht schnell."

[221] "ich rufe heute dort an und die sagen, nein, wir brauchen gar niemanden. Und in 2 Wochen haben die einen Unfall oder einen Krankheitsfall und dann [melden die sich]. Das können auch Situationen sein, Gelegenheiten, wo man kurzfristig jemanden braucht"

[222] "das hängt natürlich auch etwas mit unserer Flexibilität zusammen. Wir haben jetzt Personal ausgeliehen und dann sehen wir für 2-3 Wochen, jetzt gibt's eine ziemlich hohe Auslastung, dann haben wir den nicht einfach geholt. Sondern dann haben wir irgendwie temporäre Mitarbeiter reingeholt für diese Zeit."

[223] "Es war erfolgreich, es war einfach gehalten [abgewickelt]. (…) Man hat einfach die richtigen Stellen hinzugezogen"

[224] "Das war auch eine kurze Sache. Wir haben rasch per E-Mail vereinbart, wie wir es am einfachsten machen können. "

[225] "es wird einen Zusatzaufwand geben, aber der ist relativ gering. Etwas zusätzlich gibt es ja: man muss die zwei Teile, das eine nimmt man Mitte Monat raus, das zweite Ende Monat, und verpackt die zwei, beschriftet sie, verschickt sie. Also habe ich die halbe Stunde pro Monat an Aufwand"

"That was pretty normal. We didn't give it too much thought" [226](interview T, line 88) and "we could pick one up on the spot if we were there anyway [with our truck]." [227](idem, line 10-11). Further examples including "And now we've said we'll just ask for it. It doesn't make sense for them to offer it and produce it for us. We want these tools to be ours, we lend them to them and they produce our parts with these tools. That's how we did it." [228](interview P, line 579-581) and "But we didn't set any metrics. It was really just a matter of taking stock of the current situation. We didn't set any criteria for measuring or comparing" [229](interview E2, line 155-158).

When it comes to the management activities in this phase of transfer to the organization, the experts cited communication and organizational development as key areas of activity. The need to create a "sharing mindset" throughout the organization was considered a prerequisite for organizational development and change: "That everyone has sharing in mind in addition to buying" [230](interview M2, line 268-269) elaborating "when they want to procure something, buy something, make an investment, look for employees, whatever, that in addition to buying something, they also think that I could also rent or borrow something. That would actually be the goal, to get there" [231](idem, line 265-268) and taking an even broader view "a training course for an assembly station, an exchange of know-how, and so on. Things like that, that you just have that in the back of your mind" [232](idem, line 274-276). Further comments included "I think it also needs a bit of innovation. Also the willingness to innovate and develop. That's what's needed fundamentally in order to be able to function at all" [233](interview E1, line 8-10), and "encouraged that with the team leaders as well. If

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[226] "das war ziemlich normal. Allzuviel Gedanken haben wir da nicht verschwendet."

[227] "wir für ihn nicht eine Palette [mit Ware] mitnehmen könnte, wenn er eines hat. Oder gleich vor Ort eines abholen könnte, wenn wir [mit unserem LKW] ohnehin dort sind."

[228] "Und jetzt haben wir gesagt, wir fragen das einfach an. Dass sie das anbieten und für uns produzieren, das macht für uns keinen Sinn. Wir wollen, dass diese Werkzeuge uns gehören, wir leihen ihnen diese aus und sie produzieren mit diesen Werkzeugen unsere Teile. So haben wir's gemacht."

[229] "Wir haben aber keine Messgrössen festgelegt. Es ging wirklich einfach um eine Ist-Aufnahme. Man hat nicht irgendwie Kriterien festgelegt, woran man das messen oder vergleichen sollte"

[230] "nebst dem Kaufen auch noch das Sharen im Kopf hat"

[231] "sie etwas beschaffen wollen, etwas einkaufen wollen, eine Investition tätigen, Mitarbeiter suchen, was auch immer, dass man da halt wirklich auch nebst dem, dass ich etwas einkaufe, nebst dem auch den Gedanken habe, ich könnte doch auch was mieten beziehungsweise ausleihen. Das wäre eigentlich das Ziel, dass man dahin kommt."

[232] "mal eine Schulung für einen Montageplatz haben, einen Know-How-Austausch haben, usw. Solche Dinge, dass man das einfach im Hinterkopf hat"

[233] "Ich denke, da braucht es auch etwas diese Innovation. Auch die Bereitschaft, Innovation und

someone has an idea or something, they should get in touch with me" [234](interview M1, line 176-178) and looking for opportunity "That it might become a little better established. That we have a somewhat larger pool at our disposal, that would be desirable, would be nice. But I don't think all companies are on the same path" (interview P, line 432-434).

Developing new roles and people along with establishing routine were equally mentioned as key activities during this phase: "you have to organise it differently internally" [235](interview M1, line 327) and specifically "And then we had to convince our forwarding agent afterwards that we would do it now" [236](interview T, line 185-186). Another expert frames it somewhat more broadly "freeing up the resources, the voluntary resources from everyday life and also empowering the staff" [237](interview E1, line 138-139) and "I, as a leader, had to bring this willingness into the organisation, and this had to be fundamentally given. Otherwise, it can't work at all" [238](idem, line 188-189). And while routines helps "we have been doing this for a relatively long time and people are used to it." [239](interview P, line 226-227), challenges remain with learnings to consider: "You can't borrow bad people, you have to borrow good ones. We have never loaned out staff and then, for example, dismissed them. So these are not employees who are on a hit list at this stage, in the hope that they will stay there. If we did that, the employees would be afraid and that would be something negative. It was important that we stayed in contact with employees who had been replaced" [240](idem, line 81-85)

Weiterentwicklung zu haben. Die braucht's mal grundlegend, damit man überhaupt funktionieren kann."
[234] "Und ich habe das auch immer bei den Teamleitern angeregt. Wenn jemand eine Idee hat oder so, soll er sich bei mir melden."
[235] "muss man das intern schon anders organisieren"
[236] "Und dann mussten wir dann unseren Speditionsverantwortlichen nachher überzeugen, dass wir das jetzt machen"
[237] "die Ressourcen, die freiwilligen Ressourcen aus dem Alltag auch wirklich freizuräumen und auch die Mitarbeitenden zu befähigen"
[238] "ich als Führungskraft, diese Bereitschaft eben in die Organisation bringen musste, und diese grundlegend gegeben sein musste. Sonst kann das gar nicht funktionieren"
[239] "Wir machen das schon relativ lang und man ist sich das dann gewohnt"
[240] "man kann nicht schlechte Leute ausleihen, Du musst gute ausleihen. Wir haben nie Personal ausgeliehen, und beispielsweise anschliessend gekündigt. Also das sind nicht Mitarbeitende, die böse gesagt auf einer Abschussliste sind in dieser Phase, in der Hoffnung, die bleiben dann dort. Wenn wir das machen würden, dann hätten die Mitarbeitenden Angst und das wäre etwas Negatives. Es war wichtig, dass wir bei getauschten Mitarbeitenden … man ist ja immer mit denen in Kontakt geblieben."

This requires change management efforts which were mentioned in various contexts: "people in the company have to be behind it, think it's great, participate in it" [241](interview T, line 418-419) adding "but that also means that the effort and unrest in the business must remain as small as possible" [242](idem, line 264-265). Another expert addresses the usual resistance to change "you notice a certain reticence at the beginning. The feeling that, well, there's work to do. We have to do something and we don't have a [customer] order behind it, we don't earn anything. I think that's where the leadership is really challenged. I was also challenged to motivate people and to convince them that it might cost something and that we will never get anything back. But in the future this also opens a door for further possibilities" [243](interview E1, line 64-69). With personnel directly affected, another expert elaborates "the first round when we did this, there was not quite enough acceptance among the employees. They didn't quite understand what we wanted to achieve. They rather had the feeling, as Beni just said, that they were on the hit list. And I think that when it happened again, they were already aware of it and could see that these staff members are still here." [244](interview P, line 94-98) adding "I see more that employees are afraid, insecure. And that has to become established. When we had loaned out for the first time, the employees were not so motivated because they were afraid: oh, now they'll give me out, they don't want me anymore" [245](idem, line 487-490).

The experts agreed on a general need for communication to enable sharing permanently: "it's openly communicated, it's informed, in that direction, yes" [246](interview M1, line 183) and "communication among the staff, not across the board,

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[241] "die Leute in der Firma müssen selbst dahinter stehen, das toll finden, da mitmachen"

[242] "Aber das bedingt auch, dass der Aufwand und die Unruhe im Betrieb möglichst klein bleiben muss"

[243] "da merkt man am Anfang so eine gewisse Zurückhaltung. Das Gefühl, naja, das gibt Arbeit. Wir müssen was tun und wir haben keinen [Kunden-]Auftrag dahinter, verdienen nichts. Ich glaube, da ist dann so wirklich auch die Führung gefordert. Da war auch ich gefordert, um Leute zu motivieren und zu überzeugen, dass das vielleicht was kostet und wir nie etwas zurückbekommen werden. Aber in Zukunft dies uns auch wieder eine Tür öffnet für weitere Möglichkeiten."

[244] "in der ersten Runde als wir das gemacht haben, da war teilweise bei den Mitarbeitern die Akzeptanz nicht ganz da gewesen. Die haben nicht ganz verstanden, war wir damit bezwecken wollten. Sie haben dann eher das, was Beni eben sagte, Gefühl gehabt, sie seien auf der Abschussliste. Und ich denke, als es dann erneut vorkam hat man das schon gekannt und konnte sehen, diese Mitarbeitenden sind nach wie vor hier"

[245] "Ich sehe das mehr dass Mitarbeitende dann Angst haben, Unsicherheit. Und das muss sich etwas etablieren. Als wir das erste Mal Ausgeliehen hatten, waren die Mitarbeitenden nicht so motiviert gewesen, weil eben die Angst da war: oh, jetzt geben die mich raus, die wollen mich nicht mehr."

[246] "offen kommuniziert, es ist informiert, in die Richtung, ja"

that we are doing a sharing project via the Tier Board" [247](interview E1, line 60-61) adding "the main thing is an exchange, good communication" [248](idem, line 70) with another expert indicating "there are certainly communication strategies that we are working on" [249](interview E2, line 524). Other efforts addressed the relationships and personal exchange with partners "better communication with the supplier" [250](interview M2, line 199) detailing "communication was great. The whole thing was not done via the [MS] team, but I prefer to go to them so that you can see in person what it's all about" [251](idem, line 209-211). Pragmatic communication were also mentioned both inside the organization. "We simply reflected on this at various moments in stand-up meetings. We just had a topic, we discussed it, listen, what just happened, what did we discuss, how do we go on." [252](interview E2, line 185-187) and outside "Instead, it could be a phone call: 'Hey, I need a locksmith now, can you make someone available to me next week?' Or that one then also enters this on the platform" [253](interview E1, line 244-246)

Several experts also highlighted the need to keep communicating about sharing as such to maintain the momentum: "also getting people on board and getting staff on board to whom I had also delegated certain tasks" [254](interview E1, line 130-131) or "The right people were simply called in, the exchange was quick" [255](interview M2, line 173-174). This proved particularly relevant again in the sharing of staff, "And that it is also communicated to the employees that they are being loaned out for this reason" [256](interview P, line 261-262) adding "to stay in contact with the employees" [257](idem,

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[247] "bei den Mitarbeitenden, also nicht flächendeckend, die Kommunikation hat stattgefunden, dass wir ein Sharingprojekt machen über das Tier-Board"

[248] "da ist hauptsächlich, würde ich sagen, eben ein Austausch, gut Kommunizieren"

[249] "auch dem Ganzen heraus gibt es bei uns so Kommunikationsstrategien, an denen wir dran sind."

[250] "bessere Kommunikation mit dem Lieferanten"

[251] "Kommunikation war super. Das Ganze nachher anschauen ist nicht über [MS] Team gelaufen, sondern ich gehe lieber zu ihnen, dass man persönlich mal gerade sieht, worum es geht "

[252] "Man hat das dann einfach in verschiedenen Momenten in Stand-Up-Meetings reflektiert. Man hatte grad ein Thema, man hat das besprochen, hört mal, was ist gerade gelaufen, was haben das diskutiert, wie gehen wir weiter."

[253] "Sondern dann kann es wirklich ein Telefonanruf sein, hey, ich brauche jetzt einen Schlosser, kannst Du mir nächste Woche jemanden zur Verfügung stellen? Oder dass man das auf der Plattform4 dann auch einträgt."

[254] "auch die Leute mit ins Boot zu holen und Mitarbeiter mit ins Boot zu holen, an die ich gewisse Aufgaben auch delegiert hatte."

[255] "Man hat einfach die richtigen Stellen hinzugezogen, der Austausch war schnell."

[256] "Und dass man das den Mitarbeitern auch kommuniziert, dass sie deswegen ausgeliehen werden"

[257] "mit den Mitarbeitenden in Kontakt bleiben"

line 93) elaborating "If we did that, the employees would be afraid and that would be something negative. It was important that we stayed in contact with employees who had been replaced" [258](idem, line 83-85).

4.5 Summary of Results

In response to the three research objectives, one can summarize that (1) the impact on SMEs business models from sharing is confined to value proposition, cost structures and partnership while (2) management action is imperative throughout the Shift from Owning to Sharing, predominantly with resources needed on top management level and specific members of the organisation, leaving external support up for discussion while (3) the transition roadmap evolves in three phases of identifying the business case, enabling the sharing process and developing the organisational mindset with changing management priorities and different managerial action needed to facilitate the shift. Table 9 offers an overview of additional considerations in support of these findings.

The implications of these results for existing research, industry practice and SME managers will be discussed in Chapter 5. They will also be evaluated towards their limitations (chapter 5.5) and research ethics (chapter 3.7).

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[258] "Wenn wir das machen würden, dann hätten die Mitarbeitenden Angst und das wäre etwas Negatives. Es war wichtig, dass wir bei getauschten Mitarbeitenden … man ist ja immer mit denen in Kontakt geblieben."

Table 9 structured overview of findings and expert considerations (own illustration)

Finding	Expert considerations from interview data
Research Objective 1 – change in business model	
Expanding value proposition	New business activity, an additional value proposition, but potentially an exclusive transaction with select partners
Focus on cost	Monetizing idle resources, cheaper alternative to market and professional services, need for a full-cost perspective, need for capacity considerations, volatility and economies of scale, albeit content with cost coverage, not aiming for additional profit
New partnerships	New partnerships emerge while existing partnerships deepen, quality of these partnerships matters recognizing the effort of initializing these partnerships
Research Objective 2 – strategic shift	
Top management involvement	Broad support needed, overview of resources and oversight to represent the company pushes for top management involvement with projects initially running outside of daily business
Specific members of the organisation	Line organisation and dedicated staff with few operational concerns
Third-party support	External input needed as an early trigger and to maintain momentum along a project with mixed views on the use of a platform
Research Objective 3 – transformation	
Identifying the business case	Long-term view, strategic innovation, strategic process and urgency, management time needed, identifying resources and partnerships through personal relationships in geographic proximity
Enabling the sharing process	Between strategy and operations, ensuring recurring use while establishing processes, adjusting IT systems and infrastructure, sharing itself potentially a process.
Developing the organisational mindset	Short-notice and operational, focus on pragmatic solutions, need to establish a sharing mindset, developing new roles, managing change and maintaining communication

Chapter 5

Discussion and Conclusion

5.1 Findings Related to Previous Research

This research has (1) clarified the relevance of sharing for SMEs business model, (2) highlighted a due process of transformation from ownership to sharing and (3) outlined the areas of managerial activity along this transformation. Its design further contributes to research practice by evaluating the suitability and potential benefits of the participatory and dialogical nature of action research for understanding transformatory processes in business with a focus on managers in SMEs (Huber & Pooripakdee, 2022).

The research project and its results confirm some of the known challenges of B2B sharing – the identification of resources and partnerships as a prerequisite for sharing transactions to actually take place, remain a key obstacle (Huber et al., 2022; Steiner & Huber, 2022). All the same, this project enabled some novel sharing transactions to occur while systematically documenting and analysing ongoing sharing activities (cf. Table 13). With the impact on company's business model far less important than anticipated from existing literature (e.g. Choi et al., 2014), the threshold to engage in B2B sharing activities could be expected to be much lower than commonly argued. Still, many obstacles remain (cf. chapter 2.2), even for presumably less important resources.

Alongside, one must also acknowledge that sharing transactions are considered auxiliary by the participating SMEs and thus merit a much lower priority for action in the affected segments of their business model. In other words, if there are more promising initiatives available in the core business activity of an SME to reduce cost, create new value propositions or find new partnerships, these might be favoured since they likely offer a stronger lever and thus more promising results. This seems to be particularly relevant for asset-intensive industries who have previously addressed the identification and use of idle resources in their core business activity with a special focus on the financing of these assets (Gartner et al., 2012; Riding et al., 1994; van Zyl, 2015). Sharing, as a means to monetise idle assets, hat yet to be considered in this context.

The same applies to the involvement of top management which was identified as a key contributor to the shift from owning to sharing. For one, management attention is needed to create the urgency and allocate the necessary resources within the organisation (cf. chapter 4.3). Furthermore, a broad range of management activities is required to lead a company along three phases of transformation from resource ownership to sharing (cf. chapter 4.4). Since management time and resource is scarce by itself, and other priorities in more prominent domains of its business model may arise ongoingly, the continued attention to the transformation from ownership to sharing might be difficult to sustain despite its overarching potential in a more sustainable use of resources and subsequent advantages (Radjou, 2021).

In summary, this research confirms known challenges for B2B sharing, especially with regards to (a) the identification of idle assets and (b) the lack of consideration that sharing could be a solution to address idle asset cost. It specifically adds to previous research in highlighting the importance and outlining the characteristics of managerial action to enable organisations, particularly SMEs, to participate in B2B sharing transactions.

5.2 Implications for Industry Practice

To date, it seems that sharing does not affect an SMEs core activity, but provides opportunities for cost savings, partnerships and new value propositions using existing resources or accessing new and innovative areas of business. At the same time, SMEs assign significant effort to master the shift from ownership to sharing, so a view on the total effort and its benefits must be maintained, e.g. aiming for repeat sharing as a prerequisite early in the evaluation process of potential resources and partnerships for sharing.

As long as there are more pressing strategic priorities in the core activity of any SMEs, sharing will likely be considered of lesser importance, given the effort and ultimate strategic shift needed. However, if priorities change (e.g. strong volatility in resource use), sharing might quickly become a legitimate option to balance shortage or excess capacity. Once an SME has explored and participated in a sharing transaction, it might iteratively consider sharing for an increasing number of resources it might need or can offer to others. The systematic evolution of cooperative networks of sharing

remains to be explored but could yield much needed momentum for more frequent and more varied sharing transactions. Given the current momentum on B2B sharing in academic and industry publications (cf. Appendix L), this might be a suitable moment in time to promote the topic and accelerate the efforts in governmental and non-governmental organisations at industry, regional or national levels.

5.2.1 Sharing Opens Opportunities for SMEs

Sharing remains a valid and promising avenue for companies and especially SMEs to explore (cf. chapter 2.1). Many of the rationales for sharing and its obstacles (cf. chapter 2.2) with especially the prerequisites and preconditions (cf. chapter 2.2.2) were confirmed by this research. Next to the direct opportunities of cost savings, finding new partnership and exploring additional value propositions, sharing also opens indirect, more long-term opportunities for SMEs: the shift in mindset on how to look at a company's resources opens alternative opportunities to use them, with sharing being one of them. Examples have suggested (cf. chapter 4.2.1) that additional income could be generated directly from offering idle resources as a profitable service to the market (i.e. expanding the value proposition of the supplying sharing partner, not the receiving one) instead of a sharing transaction. The importance being, that the sharing idea triggered a change in mindset about how to deal with idle resources, rather as an opportunity, than a cost.

Similarly, sharing partnerships may lead to further business opportunities of collaboration, joint market activity or supplier-customer relationships (cf. chapter 4.2.3). Sharing may offer an inconspicuous first contact between two companies who would otherwise not have considered collaborating. Their joint interest in sharing as a more sustainable alternative to ownership may trigger other, even unintended partnership opportunities, beyond the initial sharing interest. To foster these partnership opportunities, industry associations or other forms of regional conglomerates of SMEs could promote sharing between businesses to not only enable sharing transactions but facilitate other mutually beneficial collaboration opportunities by openly exchanging information about potential sharing resources and partnerships.

5.2.2 Context Matters for the Shift from Owning to Sharing

This research shows that the context matters when transforming a company's business model from ownership to sharing. Namely, the investment and effort needed, requires internal (i.e. strategic) or external (i.e. market) pressure or a specific trigger (such as a research project) to launch a strategic effort. Regulation of an industry or market can be an obstacle to sharing since it may require full control and certification of resources: Regulation can also be a promoter for sharing, e.g. when the sharing of resources can be positively reported through its sustainability benefits. Other incentives might be established for local collaboration between SMEs while penalties could be used to avoid excess ownership of idle resources. Further research might experiment with different incentives and penalties to better understand this context.

Furthermore, this research shows that the shift from owning to sharing requires time in participating companies: first, the identification of suitable partners and resources in itself is time-consuming and requires management attention. Secondly, the permanent transformation from a business model built on ownership to one built on sharing requires a true shift in mindset and involvement of staff on a tactical and operational level, so that more frequent sharing transactions result. For SMEs yet unaware of B2B sharing and industry organisations wishing to support SMEs in their transformation, support may be offered in using the findings of this research as guidance to accommodate the three phases of transformation in (1) identifying the business case, (2) enabling the sharing process and (3) developing the operational mindset. From this research, such support appears most needed in personal coaching and guidance but may be increasingly complemented or even replaced by digital tools and platforms.

5.2.3 Sharing Maturity of Industries and Regions

This research confirms the need for a permanent shift in SMEs business model and operational mindset from the mere ownership of resources to sharing them with peers because only singular sharing transactions do not merit the efforts involved (especially management time and organisational change, cf. chapters 4.3.1 and 4.3.2). Some industries have already adopted sharing within their practice (e.g. airlines code-sharing their flights, farmers sharing their equipment), other industries have not even

heard of the concept yet. Going forward, one might need to consider the maturity of sharing within entire industries. The same consideration may apply to regions, with proximity of peers remaining a key driver in B2B sharing. Regional initiatives could develop a sharing cluster and locally benefit from more frequent and more diverse sharing activities (Marty, 2018). Growing sharing maturity in an industry or region might (a) boost the competitive pressure for sharing as alternative to ownership, (b) increase the likelihood and frequency of sharing transactions taking place and (c) encourage more businesses to transform their business models.

5.3 Recommendation for SME Managers

This research provides a wide range of tangible recommendations for managers of SMEs who wish to transform their business model from ownership to sharing. The findings highlight the potential areas of change and benefits in a company's business model, namely for identifying new partnerships, improve the cost of resource ownership and develop new value propositions. Very specific management activities are required along a three-phase transformation on a strategic, tactical and operational level. These include identification of partnerships and resources, organisational development and change as well as investing in novel processes and organisational infrastructure to enable the sharing transactions and establish a sharing mindset within their company.

Sharing does not occur naturally in an organisation; so managers must recognise the need of their involvement in initiating sharing transactions and transforming their organisation iteratively from ownership to sharing. Particularly the manager's overview over the company's resources (both idle resources to share or needed resources to request) along with his acumen in representing the company towards potential sharing partners is paramount in the early phases of any sharing initiative. Alas, management attention and tangible activities are also required along the later phases II and III of the transformation: enabling the company with regards to its people, systems and organisation while making dedicated resources available along the transformation. Managers should pay particular attention to the activities in each phase (e.g. organisational development and communication when enabling the organisation in phase III) with shifting priorities and degree of involvement.

Within existing networks and partnerships, SME managers may consider sharing (along its process and with readily available tools form this research) as one other alternative form of cooperation. It may therefore occur that sharing complements other, potentially already existing forms and opportunities for collaboration, co-creation and co-innovation found in larger initiatives with partners from the SMEs existing network or community.

5.3.1 B2B Sharing requires a Strategic Initiative

In all clarify one must acknowledge, that there is no management risk associated to a business model that remains focused on ownership. One could even argue that nothing much happens for SMEs that do not partake in the sharing economy, other than lost opportunities of monetizing idle resources, identifying new partnerships and expanding their value proposition. With current predictions on a large potential of B2B Sharing (Radjou, 2021), this could shift over time, such that companies who share their resources benefit from competitive advantages compared to those not accustomed to sharing practice. In other words, an early adoption of B2B sharing along the recommendations for managers outlined in this research might prove a worthy investment in the long run.

B2B sharing today might be considered only for selected partners and well-defined resources until more quantitative evidence on successful sharing transactions between companies is found. For SME managers, this requires to address the B2B sharing opportunity from a well-defined strategic angle along the suggested three phases of this research, starting with pragmatically identifying suitable partners and resources (cf. chapter 4.4.1). From today's standpoint the sharing benefits should be sought in the domains of cost savings, value proposition and new partnership of participating companies (cf. chapters 4.2.1, 4.2.2 and 4.2.3). Potential benefits in these areas will not materialise immediately with the first B2B sharing transaction but might appear only with later iterations of sharing the same or different resources with the same or different partners. In other words, B2B sharing must be framed within a strategic initiative which provides direction with the purpose of improving one's own business model in the aforementioned domains.

Such a strategic initiative requires purposive investment, namely of management time (cf. chapter 4.3.1), and a top-down approach that triggers further organisational involvement and activities as the transformation develops (cf. chapters 4.3.2, 4.4.2 and 4.4.3). The capabilities for executing a sharing transaction need to be build and developed over time (i.e. in along the three phases of transformation), to later seize the benefits of B2B sharing, when the needs often emerge on short notice (e.g. the need of additional capacity or availability of an idle resource). It is therefore a strategic choice and investment to explore the opportunities of B2B sharing and embrace its elements into a company's business model. Only opportunistic participation to sharing transactions was considered difficult if not impossible and little beneficial to participating companies.

5.3.2 B2B Sharing is a Journey, not a Destination

This research has confirmed that companies iteratively transform their business model from a state of ownership to embrace elements of B2B sharing. The sharing economy for managers is therefore not a single transaction or one-off activity but requires recurring involvement over time. With every new and successful sharing transaction, the knowledge and competencies in the participating organisations grow; they not only become more successful in their sharing transactions (i.e. ensuring their profitability and conformance to desired outcomes), but also identify increasing areas of further sharing opportunities. Over time, the organisational mindset evolves, and sharing becomes a more intuitive choice as an alternative to purchase and full ownership (e.g. when procurement of a new resource systematically triggers an evaluation of capacity need and sharing as an alternative for resources which will not be fully used). This continuous development of the company culture and mindset with regards to ownership cannot be formulated as a specific target, but will rather enter the organisations' core value, mission, and vision statement so that sharing becomes part of the purpose of the company, more than a set business target.

If managers were to embrace sharing in a broader context and elevate the potential positive impacts on their business model (e.g. with regards to their sustainability profile), a more determined search for resources and partnerships which are suitable for sharing would be required. For example, one would no longer just look

at the currently available and potentially idle resources the organisation has, but actively seek to join forces with other SMEs to jointly purchase resources with the objective of creating a competitive edge, e.g. with new offerings for the market. While B2B sharing would occur in such cases, the cause-effect relationship seems yet unclear: would sharing trigger such partnerships? Or would such collaborations trigger sharing transactions? One could generally hope that the increasing need for sustainability in business models (cf. chapter 2.1.2) would encourage SME managers in the future to embrace B2B sharing more actively and closer to their organisation's core business activities.

5.4 Government Policy

Little obstacles were found for B2B sharing in relation to existing government policy (albeit this was not the objective of this research). While SMEs still contribute the majority of companies, GDP and jobs in most OECD countries (OECD, 2019), supporting them in improving their cost base, finding new value propositions and partnerships through sharing does certainly align with overall government priorities of sustainability and local industry support. This research indicates the need for external support and incentives for SMEs to prioritize B2B sharing ahead of other strategic opportunities. Government policy could facilitate such support and incentives through collaborative projects, Public Private Partnerships (PPP) or continue to enable sharing-related action research projects. Also, it might consider reviewing its current regulations by industry or region in favour of sharing resources.

5.5 Limitations and Considerations

The research design derived from the research question and objectives is consciously focused and limited to the SME community of Switzerland. Data was solely collected in an SME context which aligns with the rationale for sharing being likely most beneficial to SMEs (cf. chapter 2.1). Validity and application of results is therefore willingly limited to SMEs and a direct extension to larger organisations cannot be justified.

This research was conducted from March 2020 to August 2022 with core empirics between December 2020 and November 2021 (cf. Appendix D). During this

period, the participating SMEs were strongly affected by the COVID-19 pandemic which encompassed a wide range of rapidly changing effects in their markets, supply chains and government policies (IMF, 2021). Despite a strong engagement and interest by the participating SMEs, their managers were often absorbed by priorities in more pressing and urgent domains of their daily business operation. Most interactions between sharing partners and researchers had to be conducted virtually since personal contact was restricted. The topic of management challenges due to the COVID pandemic or any related management challenges did not surface in this research but might have impacted the empirics. Overall, Switzerland and Swiss businesses were less affected by COVID measures than other markets (OECD, 2022) which made the completion of this research possible, even during these unusual circumstances.

5.5.1 Platform-mediated Business Models

Literature on B2B sharing economy business models often implicitly assumes the need and existence of a platform operator as intermediary between participating business parties (Muñoz & Cohen, 2018). The presence or absence of a platform is not in focus of this research since it focuses on the transformation of business models of the participating businesses, not the business model of platforms. Ultimately, it is possible that a business transforms from ownership to sharing and onwards to become a sharing (platform) operator itself. However, there is no evidence to date that this trajectory is causal and therefore such convergence to platforms is left unexplored.

Given the challenges with platform usage in B2B and especially in the SME context so far (Cohen, 2016; Täuscher & Kietzmann, 2017), a platform-operated sharing in itself is neither assumed nor the objective of this research. This research does not pre-conditionally discern the technology required to enable sharing between businesses since these might or might not be grounded on ICT-driven platforms. It includes the role of technology (systems) next to the organisation and people as one of the managerial dimensions in facilitating the shift from owning to sharing. The roles of potential platform operators and intermediaries that enable sharing between businesses while likely offering additional services to the B2B ecosystem are not in focus of this research albeit they might be very attractive and warrant a separate piece of research.

5.5.2 Access Economy vs. Sharing between Peers

Some academic debate challenges the sharing economy in that it does not substantially differ from the access economy (Bardhi & Eckhardt, 2012), i.e. new business models that replace ownership with access to a resource. Indeed, both terms are sometimes used interchangeably, and some confusion might occur. Sharing in the narrow sense of the term implies that (a) the party sharing a resource would have to sacrifice access to that resource for the duration of the sharing transaction and (b) the sharing occurs between peers. The access economy more widely replaces ownership with access, without specifying who provides that access. In most cases, it relies more heavily on a supplier or access provider that – instead of selling ownership – provides access to a resource resulting in a supplier-customer relationship of access, which differs from sharing amidst peers.

In P2P sharing we often see that the initial sharing between peers later transforms into what Muñoz & Cohen (2018) call a "B2Crowd" platform model where a commercial participant or the platform operator itself provides the majority of resources which are then shared between the users of the platform. The balance of peers aiming for equal offering and using resources at the heart of sharing does not apply to many C2C sharing cases (Frenken & Schor, 2017; Martin, 2016): the majority of AirBnB guests or Uber customers never engage on the offering side as hosts or drivers. Many sharing services therefore show characteristics closer to a rental or access economy model than the actual idea of sharing between peers. This hierarchical relationship between providers and users translates into more of a B2C business model, which implies a pre-existing hierarchical relationship in the value chain. What appears to be a sharing offer is actually a marketing channel / service transformation of a pre-existing product or service. For application in this research, hierarchical relationships along the value chain are explicitly excluded, thus B2B sharing must conditionally occur horizontally or transversally of companies in the same or different value chains.

The impact for a business when changing from owning to accessing or renting a resource in comparison with sharing is probably less important since the service relationship with a rental provider imposes less risk considerations for the resource to be unavailable. For businesses, the question on what resources to own and what resources to rent or lease is a well covered in research (Ezzell & Vora, 2001) whereas

sharing aims to take a novel perspective. Doing so, sharing potentially offers more variety of access (e.g. co-ownership) and therefore a wider variety of business models, which justifies a dedicated investigation into the transformation required. Understanding the managerial action required in B2B to shift from owning to sharing, findings might be reflected on their applicability on the shift from owning to accessing although it would yet have to be confirmed that the transformation towards access impacts a business model as significantly as sharing.

5.5.3 Business-to-Business

Profit-oriented C2C sharing business models (such as Uber, AirBnB) transform individual providers of resources (Uber drivers, AirBnB hosts) into micro-enterprises much of the likes of a (rental) service (Schlagwein et al., 2020; Scholl et al., 2015). Also, they incentivise "marquee" users who contribute significant momentum to one market-side of their platform to generate demand on the other market-side (Eisenmann, 2008; Perren & Kozinets, 2018). These users and cases will not be considered "businesses" in the sense of aiming for B2B sharing business models.

Findings on B2B sharing between independent legal entities outlined here (as opposed to individuals in C2C sharing) could extend to public, non-profit entities or non-governmental organisations (NGOs), offering additional opportunities for competitiveness and sustainability sharing resources between profit-oriented entities and other stakeholders at large (Zbuchea et al., 2018). Within business modelling, multiple pairings are plausible (business-to-government, business-to-NGO, etc.) with yet untapped potentials. Findings on The Shift from Owning to Sharing in B2B might need to be evaluated on their applicability to such extended cases.

5.6 Areas of Further Research on B2B Sharing

Given the overall potential of B2B sharing (Radjou, 2021), this topic merits further research in a range of domains (cf. Appendix L). For one, there seems to be a need to search for more dedicated sharing cases at the core of SMEs business models. This would require imposing sharing as an alternative to resource ownership for dedicated resources attached to the core activity of participating companies, likely

requiring a more disruptive approach. Sharing then would become a prerequisite for business operation rather than a strategic option.

More closely focusing on the results from this research, there is a need to validate these findings with more cases and a bigger, international sample of SMEs, i.e. confirm the three phases of transformation, the three domains of business model affected by sharing and management's role and activities along the transformation. The applicability of the shift from ownership to sharing might separately need to be validated for large organisations.

Amidst other domains, further research might need to address the persistent obstacles of swiftly and purposefully identifying resources and partnerships suitable for sharing; namely which preconditions need to be filled for SMEs to systematically participate and benefit from sharing as well as how to identify and purposefully seek suitable partnerships for sharing activities.

5.7 Conclusion and Outlook

This research illustrates that B2B sharing does impact participating companies on the level of their business model, albeit limited to selected aspects of their cost structure, new partnerships and extended value propositions. The effort for companies to participate in the B2B sharing economy is not predominantly related to their business model, but much more to the fact that it requires managerial involvement and tangible actions to identify opportunities for sharing, to enable the sharing transactions, and to permanently establish sharing of resources as a suitable alternative to ownership.

Single sharing transactions confirm the first two phases in a company's more permanent transition towards sharing (Huber et al., 2022), namely a strategic onboarding in search of a suitable sharing partner and suitable resources – followed by a process-oriented, more tactical activity to enable the transaction as such through an agreement between the two sharing partners. Beyond repeat sharing transactions, the more permanent shift from owning to sharing also requires the empowerment of a company's organisation through organisational development so as to engage in sharing transactions more readily as a suitable alternative to resource ownership.

B2B sharing remains a rare activity which was encouraged and supported through an action-research-based methodology of this initiative. For a stronger

validation of these findings, more frequent and diverse sharing between businesses and especially SMEs must take place. The empirical scope and research methodology, however, are not confined to the set of already confirmed company cases but can easily be expanded to additional companies. Two sets of action research cycles and data records were generated with each sharing transaction (i.e., one for each sharing participant company), which allowed for a swift accumulation of empirical data even with a relatively limited set of participants. Further sharing transactions, along with additional cycles of action research at the same or additional companies, could further validate the findings.

Transformational issues present an ever more frequent challenge in applied business management research (Frishammar & Parida, 2019; Rahman & Thelen, 2019), for which the methodology outlined here might find its application in areas such as digital transformation, service transformation, change management, or organisational development. While it is still relevant to understand such transformations with regard to their outcome (before / after) – i.e. in terms of *what* has changed –, an equally attractive question will be to better understand *how* the transformation was achieved. As the role and actions of managers and executives in such transformations are already a subject of research (Kumar Basu, 2015; Wrede et al., 2020), they are often investigated and described as static characteristics of a leader's profile or organisational parameters. Through its iterative nature, this research design could potentially allow to understand such characteristics as evolving roles and actions along the timeline of a transformation. Working interactively with managers along several iterative cycles of action research, their evolving actions and roles along a transformatory process may be documented while facilitating the transformation itself. Insofar, this research methodology can contribute to a transformation in business within a research project while simultaneously documenting its findings for a broader audience. Looking at managerial action in the dimensions of systems, organisations and people equally merit consideration in transformatory processes, which might require change at varying degrees in these dimensions at different times.

Along an action research project, research goes hand-in-hand with problem solving, which required a stronger emphasis on reflective action or reflexivity in balance of generalisation (Eriksson & Kovalainen, 2008, pp. 207–208). For doing so,

the contextual conditions of the research project were aptly outlined (Jüttner, Huber, & Wäfler, 2019) along with detailed descriptives of the participating organisations and the key informants along a Business Model Canvas analysis of each SME. The transfer of contextualised knowledge to other settings requires an active process of reflexivity instead of direct generalisation of findings (Eriksson & Kovalainen, 2008, p. 208).

With related business research focused on (1) a need for business model transformation, (2) aiming to understand effective managerial action and (3) the interest in a transformation along a timeline, this specific action research methodology and its tools might be considered along a series of qualitative case studies in potentially a broad range of similar subject matters. Quite directly, Business Model Canvas might be embedded along an overarching action research cycle as a structuring model to identify areas of transformation and change. The impact on an organisation's business model, namely its value proposition, comes often as a surprise in research on digital transformation, which – like sharing – might be perceived merely as a tool for increasing efficiency and save cost (Kraus et al., 2021; Leão & Silva, 2021). Using action research along with Business Model Canvas might offer more structured guidance to identify which domains of a company's business model are affected and impose to look at transformational developments from an overarching business model perspective early on.

In working interactively with managers along several iterative cycles of action research, their evolving actions and roles along a transformatory process may be documented while facilitating the transformation itself. In so far, action research can cooperatively contribute to a transformation in business within a research project while simultaneously documenting its findings for a broader audience. Looking at managerial action in the dimensions of systems, organisations and people equally merits consideration in transformatory processes which might require change at varying degree in these dimensions at different times. Again, the iterative nature of action research allows to record a time dimension for managerial action in the scope of analysis.

The participatory nature of action research advocates itself for transformations that include participatory elements, either in their process or as a result. B2B sharing being a collaborative activity in comparison with competitive ownership of resources,

action research has itself facilitated participating SMEs to transform towards a more participating business model for themselves.

With a better understanding of the importance of B2B sharing for SMEs and tangible recommendations for managerial activity along the shift from ownership to sharing, this research hopefully encourages more companies to engage in sharing as a more sustainable alternative to resource ownership.

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Appendix

Appendix A List of Academic Institutions and Industry Partners

Table 10 Research Institutions

Institution	Participating Staff and Title	Research Specialisation, Contribution and Focus
Lucerne University of Applied Sciences and Arts – School of Business	Prof. Dr. Uta Jüttner, Head Researcher	Platform-mediated business models, supply chain management, digital process management, network management
	Prof. Sebastian Huber, cand. DBA	Start-up, business model transformation, SME internationalization, digital process management
	Dr. Justus Gallati, Expert Researcher	Sustainability, systems thinking, sustainable development, ecology studies
	Karina von dem Berge, Research Fellow	
University of Applied Sciences and Arts Northwestern Switzerland, School of Applied Psychology	Prof. Dr. Toni Wäfler, Head Researcher	work and organizational psychology, integration of human, systems and technology in light of industry 4.0
	Cyrill Ziegler, Research Fellow	
	Luca Niederhauser, Research Fellow	

Table 10 Research Institutions (continued)

Institution	Participating Staff and Title	Research Specialisation, Contribution and Focus
University of Applied Sciences and Arts Northwestern Switzerland, School of Engineering	Charles Huber, Head Researcher	Business Engineering Management, Cooperation and Collaboration Management in SME networks, order acquisition and processing
	Roger Siegenthaler, Research Fellow	
	Simona Burri, Research Fellow	

Table 11 Industry Partners – SMEs in asset-intensive industries

Company	Main Contact and Title	Industry / Activity
Company R	TT, CEO	Leading specialist for metal finishing with electroplating, anodizing and electro polishing
Company P	DS, Head of Production	Production specialist for pull-outs, equipment and accessories for the kitchen and furniture industry
	BW, CEO	
	US, Head of HR	
Company E	KS, Head of Operations	group of medium-size industrial companies in metal processing
Company K	WB, Head of Production	Specialist in high-end injection moulding

Table 11 Industry Partners – SMEs in asset-intensive industries (continued)

Company	Main Contact and Title	Industry / Activity
Company T	TS, CEO	High-end manufacturing of metal parts and components
Company S	MG, Head Shipyard	Ship building and maintenance
Company C	DM, Business Development Engineer	Supplier of battery solutions for industry customers
	ES, Head of Marketing	

Table 12: Industry Partners – sharing facilitators

Company	Main Contact and Title	Industry / Activity
Facilitator C	CK, CEO	independent Swiss platform for the sale and purchase of companies as well as corporate succession
Facilitator K	SC, CEO	SME-focused service agency on process optimization and digital transformation projects
Facilitator V	MS, President	Network of industry partners from a wide range of innovation, development and production domains in mechatronics
Facilitator W	DF, Editor in Chief for Client Communications	Cooperative Bank with focus on SMEs and its own "WIR" currency

Appendix B Innosuisse-Supported Research Initiative # 42456.1

Innosuisse is "*a federal entity under public law with a separate legal personality (…) to promote science-based innovation in the interests of industry and society in Switzerland*" (Innosuisse, 2020). A consortium of academic institutions and SMEs from industry has requested and received funding from Innosuisse in support

Figure 16 Innosuisse financing and operations model (cf. Innosuisse 2020)

of a research initiative on B2B sharing of SMEs in Switzerland with application no. 42456.1 entitled "KMU Sharingmarket - Ein zweistufiges Geschäftsmodell zur Förderung von B2B Sharing Projekten" [SME Sharing Market – a two-step business model to promote B2B sharing projects] (Jüttner, Huber, & Wäfler, 2019). Three complementary academic institutions along with nine industry partners (cf. Appendix A) will collaborate in this initiative to explore conditions required for SMEs to participate in B2B sharing along with the transitional process required to shift from owning to sharing. Appendix A lists all participating academic institutions, company partners from industry and the staff involved at each of these. Sebastian Huber, author of this DBA proposal, is a member of the aforementioned research initiative and will himself lead the research efforts into the transitional process, captured in a separate project package of the initiative.

Recent studies attribute Swiss consumers an above-average willingness to sharing (Grampp et al., 2016; PWC, 2015; Stokar et al., 2018) underlined by the presence of numerous national and international sharing operators in the C2C, B2C and C2B having established themselves as respected competitors in many service industries. In comparison with Germany for example there are almost no B2B sharing operators in Switzerland (Georgi et al., 2019). This research initiative therefore investigates B2B sharing for SMEs on two levels: first, it aims at understanding how to identify and establish sharing projects between SMEs. For doing so, it must identify the assets to be shared along with success factors that enable sharing between two or more SMEs (cf. chapters 2.1 and 2.3). Secondly, and building on identified sharing project

opportunities, it investigates how SMEs potentially transform or expand their business model from asset ownership to sharing. The latter corresponds congruently with the objective of this DBA proposal.
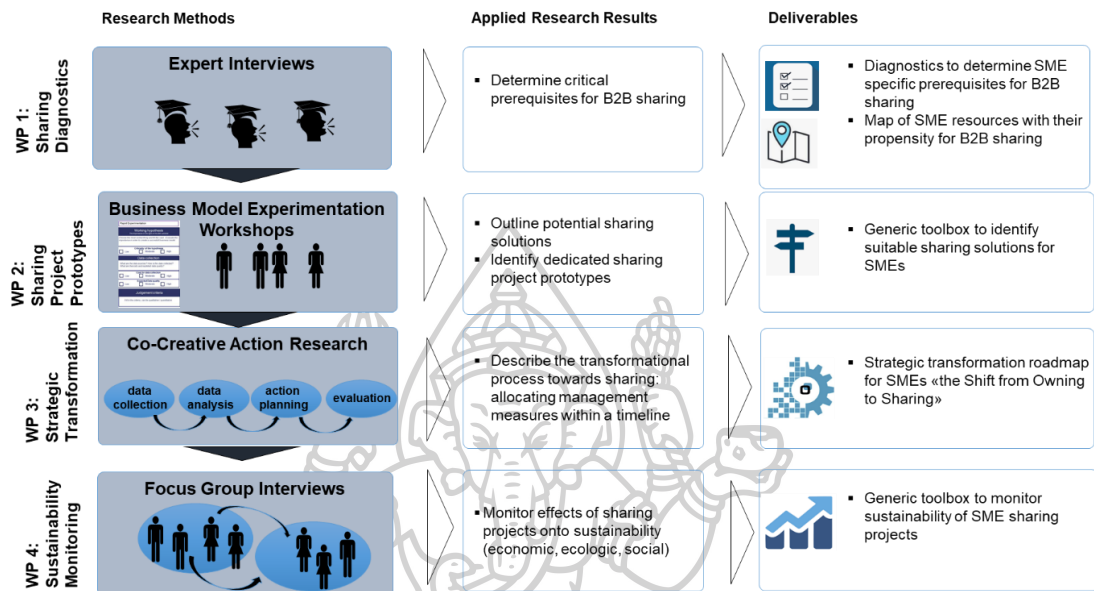

Figure 17 framework of the Innosuisse research initiative on B2B sharing (Jüttner, Huber & Wäfler, 2019)

While the research initiative focuses on generating tangible, yet academically sound results for the industry partners who participate in the initiative, the DBA thesis itself will elevate the findings to a more generic level, generalizing the case study findings from the research initiative for a broader SME audience. For doing so, the DBA thesis will complement the research initiative work package with action research cycles collecting qualitative data from the sample of Swiss SMEs (cf. Chapter 3).

This research initiative differs insofar from other research on B2B sharing, in that it does not focus on a given industry or asset type to be shared. It also leaves the technical solution for the sharing of resources open; a platform to execute the sharing transaction and scale B2B sharing might be a solution amidst other options. Whilst using existing knowledge on platform-mediated business operations, it avoids to determine a sharing platform to be the ultimate objective of B2B sharing for SMEs since access to and operation of such digitized platforms has proven to be a challenge and obstacle for SMEs to participate in B2B sharing (as discussed in chapter 2.2).

Furthermore, the research methodology purposefully uses well-defined sharing projects between determined partners and a well-specified resource that initiates a gradual transformation of the business models of involved SMEs.

The design of the overall research initiative significantly contributes with latest findings on the required conditions for sharing between SMEs to occur as well as which assets are likely to be shared, thus focusing the research contribution of this DBA proposal considerably. The overall research initiative consists of four interrelated work packages (cf. Figure 17):

WP 1 determines the assets SMEs are interested and willing to share with others along with the required preconditions for sharing to occur,

WP 2 systematically identifies project prototypes for B2B sharing,

WP 3 describes the transformational process in a strategic roadmap for SMEs from resource ownership to sharing, and

WP 4 evaluates the impact on economic, ecologic and social sustainability incurred with B2B sharing between SMEs.

Embedded in this initiative, this DBA research will greatly benefit from most up-to-date interdisciplinary research on prerequisites for SMEs to endeavour on the shift from owning to sharing. Namely, participating stakeholders will jointly explore (a) the conditions for SMEs to engage in B2B sharing along with (b) their preferences in resources to be shared (cf. Jüttner et al, 2019, work package 1). Participating companies will determine specific sharing projects in terms of partners involved and resources to be shared (idem, work package 2). Concurrent with this DBA proposal, the third work package (idem) will investigate the shift from owning to sharing – how SMEs evolve their business model in the B2B sharing economy.

Starting from March 2021, work package 3 will develop a strategic transformation roadmap for B2B sharing between SMEs, building on the formerly defined resources, preconditions (WP 1) and sharing prototypes (WP 2). It aims at describing and understanding how SMEs successfully transition from their current state of resource ownership to sharing resources. This being said, SMEs will initiate this transition from their individual initial state of preconditions with their projects aiming at different targets of sharing. E.g. one SME might already possess positively correlated attitudes towards sharing and thus aim towards more fundamentally integrating sharing

into its business model in this next strategic transition, while another SME will approach their sharing prototype with more caution from a less favorable starting point and less ambitious targets.

Appendix C Semi-Structured Questionnaire for Management Interviews

Managerial Action Taken

1. What specific managerial action have you and members of your team taken along the sharing project: before, during and after the sharing transaction?

2. Can you cluster these activities in how they impacted dimensions of (a) organisation, (b) systems and (c) people?

Evaluation of managerial measures

3. Was the sharing transaction successful for you? How do you measure / determine that?

4. Please identify for each of the following your most effective managerial action that contributed to the success of this sharing project:

    a) enabling the company for sharing

    b) identifying suitable resources

    c) identifying suitable sharing partners

    d) contracting selected sharing partners

    e) making resources available for sharing

    f) executing the sharing transaction

    g) ensuring intended effects / reaching own objectives

5. Which managerial actions did you consider ineffective in retrospect?

6. How do you evaluate your timing of action? Did the timing of your managerial action influence its impact and contribution towards reaching your targets?

7. Which managerial actions created positive effects beyond the target of this specific sharing project? Did measures impact your company on the level of its business model? If so, how?

Identifying room for improvement towards future sharing transactions

8. Considering your sharing experience thus far, how do you plan your next sharing project?

9. Which managerial actions do keep from previous projects?

10. Which specific managerial actions do you plan to change from previous projects? How? And why?

11. Which managerial actions do you plan to add?

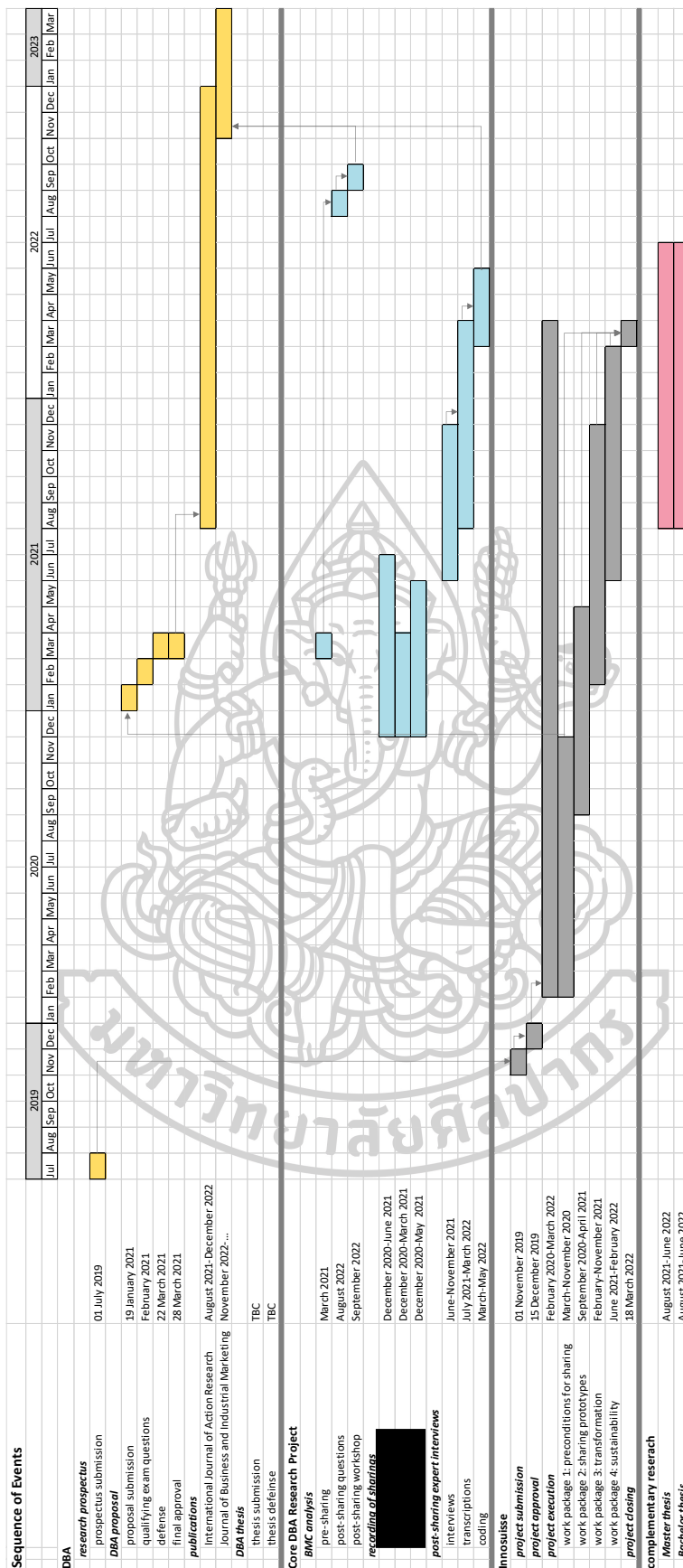**Appendix D Overall Sequence of Events**

Figure 18 overview and timeline of all related research activities

Note: for an overview of published research from this initiative, please refer to Appendix L.

Appendix E Overview of B2B Sharing Projects

Table 13: Overview of B2B Sharing Projects

Shared Resource	Providing Party	Using Party	Status as of 2022
3D Measurement	Company T	Company P	Ongoing
Expert Knowledge	Company S	Company C	Completed (one-off sharing)
Transportation	Company R	Company T	Ongoing
Personnel	Company P	Company E and others	Ongoing
Welding Work	Company S	Company R	Abandoned: internal resources became available at Company R
Forklift	Company S	Company P	Abandoned: transportation of the forklift could not be managed

Appendix F Overview of Post-Sharing Interviews

Table 14: Overview of Post-Sharing Interviews

Ref.	Sharing Case	Interviewed Party	Interviewee	Interview Date
M1	3D Measurement	Company T	TS	17 June 2021
M2	3D Measurement	Company P	DS and MH	16 June 2021
E1	Expert Knowledge	Company S	MG	17 June 2021
E2	Expert Knowledge	Company C	DM	08 July 2021
T	Transportation	Company R and Company T	TT and TS	10 November 2021
P[259]	Personnel	Company P	BW, DS and US	24 November 2021

1

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[259] Exceptionally, this interview included two interviewers: Karina von dem Berge and Sebastian Huber

Appendix G Coding System for Interviews

Table 15: List of Codes and Comments (export from MAXQDA, 13 May 2022)

List of Codes	Comments
free and in-vivo Codes	
\Sebastian Huber	
\\Covid	
\\company culture	
\\pragmatism and simplicity	
\\resource quality	resource = object / functions / service quality
\\initial project setup	
Sharing Impact	
\at Business Model level	cf Business Model Canvas
\\channels	
\\customer relationships	
\\key activities	
\\revenue streams	
\\partnerships	direct link towards "identifying partnerships" in pre-sharing?
\\customer segments	
\\cost structure	
\\resources	

Table 15 List of Codes and Comments (export from MAXQDA, 13 May 2022) (continued)

List of Codes	Comments
\\value proposition	this includes business cases / areas of market offering which are impacted (in consequence including new customer relationships etc.)
\at strategic level	6 months and longer
\at tactical level	up to 3 months, and likely repetitive
\at operational level	can also be opportunistic (i.e. only accidental / occasional) while tactical would already be directed / directional
Position of Sharing Responsibility	
\CEO & Management	
\Team	
\Specific Member of Staff or Role	
\outside the company's own organisation	especially platform / and here the Innosuisse-project team
Timing of Managerial Action	cf. various B2B sharing sources
\pre-sharing	set out and develop (cf. Choi)
\\identifying resources	
\\identifying partnerships	
\during sharing	operate (cf. Choi)
\post-sharing	scale

Table 15 List of Codes and Comments (export from MAXQDA, 13 May 2022)
(continued)

List of Codes	Comments
Domains of Management Actions	
\Systems	
\\Financial Resources	
\\IT and Infrastructure	
\\Processes	
\Organisation	
\\Organ. Development and Change	includes indications of change in company culture and attitude
\\Roles and Responsibilities	
\\Communication	
\People	
\\Management Time	
\\Hiring and Firing	
\\Development and Training	

Appendix H Recorded Exchanges of Management Activities

Sharing Case

13.05.2022

Ressource / Sharing Transaktion	Messmittel, 3D Messgerät	
Link zum Inserat auf KMU Sharingmarket	https://member.kmusharingmarket.ch/listing/3d-messmaschine-mit-messtech	
Sharing Partner 1: im Besitz der Ressource	████████	
Sharing Partner 2: mit Bedarf an der Ressource		
Start des Sharings / Liefertermin		
Ende des Sharings / Rückgabetermin		
Sonstige Vereibarungen zum Sharing		
(Versicherung, Transport, Vertrag, usw.)		
Moderator*in	Simona Burri	

Protokoll der Interaktionen

vor / während / nach der Sharing Transaktion

#	Datum	Art der Interaktion	Teilnehmende Personen	Inhalte der Interaktion (Stichworte)	Ergebnis / Auswirkungen auf den Sharing Case	Quelle Protokoll
1	11.12.2020	Workshop	beide Partner plus Moderator		grundsätzliches Interesse / Bereitschaft für Sharing identifiziert	Zoom Aufnahme
2	18.02.2021	Workshop	beide Partner plus Moderator	die Sharing Opportunity wird identifiziert: 3D Messung	Ressource und potentielle Partner klar	Zoom Aufnahme
3	16.03.2021	Besuch vor Ort	Tschudin + Heid, Moderator	allgemeiner Firmenbesuch, Rundgang, anschliessende e-Mails	bessere Kenntnisse zu den Tätigkeiten und Infrastruktur von T+H, direkte Vermittlung	E-Mails
4	12.04.2021	Workshop	beide Partner plus Moderator	Austausch zum konkreten Ablauf für Sharing	Konkretisierung vom Ablauf, Verankerung in der Organisation, nächste Schritte geklärt	Zoom Aufnahme
5	17.05.2021	E-Mail	Moderator an beide Partner	Erinnerung an nächste Schritte		E-Mails
6	26.05.2021	Besuch vor Ort	QS Mitarbeiter Hr. Huber (peka) bei Tobias Schmid	Teile können gemessen werden; Details klar		E-Mails
7	26.05.2021	E-Mail	Denis / Tobias	Angebot, Austausch zu Kosten und Ablauf der Messungen	Kosten müssen nochmal geprüft werden	E-Mails
8	31.05.2021	E-Mail	beide Partner	Update Kosten (Anzahl Teile, Frequenz)	Sharing kann losgehen	E-Mails
9	01.06.2021	E-Mail	Denis an Tobias	Messprotokoll und Daten Messprogramm	Messung kann programmiert werden	E-Mails
10	10.06.2021	E-Mail	tobias an Denis	Messung programmiert, kann losegehen	Messung kann starten am 14.06.21	E-Mails
11	11.06.2021	E-Mail	beide Partner	Details für erste Messung	Teile, Termin, Logistik geklärt	E-Mails
12	14.06.2021	Sharing Start	beide Partner plus Moderator			

Figure 19 exchanges on sharing of 3D measurement (Company T and Company P)
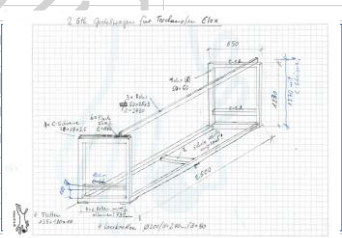
Sharing Case

13.05.2022

Ressource / Sharing Transaktion	Mitarbeiter für Schweissarbeiten	
Link zum Inserat auf KMU Sharingmarket		
Sharing Partner 1: im Besitz der Ressource	████	
Sharing Partner 2: mit Bedarf an der Ressource		
Start des Sharings / Liefertermin	01.06.2021	
Ende des Sharings / Rückgabetermin	31.08.2021	
Sonstige Vereibarungen zum Sharing	noch keine Vereinbarungen ausgehandelt	
(Versicherung, Transport, Vertrag, usw.)		
Moderator*in	Sebastian Huber	

Protokoll der Interaktionen

vor / während / nach der Sharing Transaktion

#	Datum	Art der Interaktion	Teilnehmende Personen	Inhalte der Interaktion (Stichworte)	Ergebnis / Auswirkungen auf den Sharing Case	Quelle Protokoll
1	11.12.2020	Workshop	beide Partner plus Moderator	Sondierung der Möglichkeiten	Klarheit über Zeitraum (wenn die Schiffe von Shiptec aufm See sind) und MA Profile	SharePoint\KMU Sharingmarket - Dokumente\AP2
2	18.02.2021	Workshop	beide Partner plus Moderator	Bestätitung des Cases (es wurden andere Cases konkretisiert)	kein Fortschritt	
3	12.04.2021	Workshop	beide Partner plus Moderator	Austausch zum konkreten Ablauf für Sharing	gegenseitiges Verständnis für Anforderungen und Modalitäten	Zoom Aufnahme
4	23.04.2021	E-Mail	Rero an Shiptec	Zusendung technische Skizze, gleichzeitig Info, dass der Sharing Bedarf sich nach hinten verschiebt	technische Konkretisierung, gleichzeitig ist eine Verzögerung zu erwarten	E-Mail
5	26.04.2021	E-Mail	2 Nachrichten in beide Richtungen	Direkt-Kontaktaufnahme Spezialisten Schlosserei (auch per Telefon)	konkretisierung der Anforderungen	E-Mail
6	30.04.2021	E-Mail	Shiptec an Rero	Angebot	Preise festgelegt	E-Mail
7	05.05.2021	E-Mail	Rero an Shiptec	Überarbeitung der Angebots angefordert	Staffelpreise angefragt	E-Mail
8	16.05.2021	E-Mail	Shiptec an Rero	Angebot mit Staffelpreisen	Preise festgelegt	E-Mail

Figure 20 exchanges on sharing of welding work (Company S and Company R)

Sharing Case

13.05.2022

Ressource / Sharing Transaktion	Expertenwissen zu Online Marketing
Link zum Inserat auf KMU Sharingmarket	
Sharing Partner 1: im Besitz der Ressource	
Sharing Partner 2: mit Bedarf an der Ressource	
Start des Sharings / Liefertermin	
Ende des Sharings / Rückgabetermin	
Sonstige Vereibarungen zum Sharing (Versicherung, Transport, Vertrag, usw.)	
Moderator*in	Karina von dem Berge

Protokoll der Interaktionen

vor / während / nach der Sharing Transaktion

#	Datum	Art der Interaktion	Teilnehmende Personen	Inhalte der Interaktion (Stichworte)	Ergebnis / Auswirkungen auf den Sharing Case	Quelle Protokoll
1	11.12.2020	Workshop	beide Partner plus Moderatorin			
2	18.02.2021	Workshop	beide Partner plus Moderatorin	Grobe besprechung des potenziellen Sharing-Cases (Online-Marketing)		
3	26. Feb	E-Mail	beide Partner plus Moderatorin	Terminverschiebung auf den 12.03.		
4	12.03.2021	Besuch vor Ort	beide Partner plus Moderatorin	Führung bei Shiptec mit Vorstellung aller Gewerke Beschreibung der Situation bei Contrel (KMU mit "nur" 9 Mitarbeitenden und eher knappen Ressourcen) Erklärungen zum bisherigen Projektverlauf an Edith, da sie erst kürzlich von Deny übernommen hat Brainstorming zu möglichen Punkten zur Zusammenarbeit wie z.B. Werbeflächen auf Schiffen, Ausstattung mit Akkus für E-Bikes etc. Absprache zu konkretem Vorgehen bzgl. Inputs von Shiptec zum Online-Markting von Contrel Angebot von Mike, dass der Praktikant von Shiptec eine externe Analyse des Online-Auftritts von Contrell erstellt und basierend darauf Vorschläge für die Zusammenarbeit in diesem Bereich erarbeitet	Präsentation der Analyse am 22.03. vor Ort bei Contrel inkl. Führung vor Ort Weiteres Brainstorming bzgl. Anderer Punkte für die Zusammenarbeit geplant (auch um Potenziale für eine mögliche "Gegenleistung" zu identifizieren)	Fotos während der Führung und Tonaufzeichnung der Diskussion
5	22.03.2021	Besuch vor Ort	beide Partner (Mike, Gianluca, Edith, Deny) plus Moderatorin	Führung bei Contrel und Präsentation der verschiedenen Tätigkeitsfelder sowie dem Stand des Online-Marketings, Brainstorming zu möglichen weiteren Feldern zur Kooperation, Abstimmung des weiteren Vorgehens hinsichtlich Online-Marketing	Gianluca (Praktikant bei Shiptec) führt zusammen mit einer weiteren Person von Shiptec eine Analyse der Online-Kanäle (Website und Social Media Kanäle) für Contrel durch und präsentiert die Ergebnisse in einem Online-Meeting am 31.03. die Ergebnisse inkl. Handlungsempfehlungen für Contrel Weitere potenzielle Kooperationsfelder: - Kontakt von Deny zu Schifffahrt in der Ostschweiz - Zusammenstellung Batterie-Paket für Shiptec - eBike-Akkus für Schiffstour-Kombi-Angebot	Fotos während der Führung und Tonaufzeichnung von Teilen der Diskussion
6	31.03.2021	Workshop	beide Partner (Mike, Gianluca, Edith, Deny) plus Moderatorin	Präsentation der Analyse des Online-Marketing von Contrel	Analyse durch Gianluca und eine weitere Praktikantin ist eine gute Basis für Contrel, um sich weiter mit dem Thema Online-Marketing auseinander zu setzen (gewünscht war aber eigentlich eine Unterstützung bei der Betreuung von SoMe-Kanälen bzw. beim Online-Marketing) Mögliche Zusammenarbeit im Bereich "Go to green" Contrel muss entscheiden, in welche Richtung sie inhaltlich mit dem Marketing gehen möchten und dann steht Shiptec für ein gemeinsames Brainstorming bereit Gegenseitiges Lernen durch Netzwerken, z.B. mit der Firma Aetron (Deny stimmt Termin ab) Idee: Sharing Plattform könnte auch genutzt werden, um Sharing-Projekte zu dokumentieren und Cases in der Community zu teilen (unklar: wo ist die PF aufgehängt)	Aufzeichnung des Teams-Meetings

Figure 21 exchanges on sharing expert knowledge (Company C and Company S)

Appendix I Feedback on Business Model Transformation

Table 16 written feedbacks from SMEs on the transformation of their business model

	Hypothesis 1 – sharing transforms the business model	**Hypothesis 2 – the business model evolves in the domains of partnerships, value proposition und cost**	**Hypothesis 3 – the changes persist for the long-term beyond B2B sharing transactions**
TS, Company T	Through sharing, new partnerships can be established. Through these, there can be additional benefits, such as new potential customers or the development of new business areas.	As mentioned above, new partnerships are possible. Of course, sharing brings a cost advantage, but I doubt that this can be of great importance for the company (of course, there can be lucky hits). An added value can certainly be achieved because sharing objects are usually available at short notice and can thus help the company to supply the customer on time.	Partnerships and increased flexibility

Table 16 written feedbacks from SMEs on the transformation of their business model (continued)

	Hypothesis 1 – sharing transforms the business model	Hypothesis 2 – the business model evolves in the domains of partnerships, value proposition und cost	Hypothesis 3 – the changes persist for the long-term beyond B2B sharing transactions
TT, Company R	The project had no influence on our business model. I can't imagine that this will be the case to any significant extent in the future. Our industry is rather special in this respect: we don't have machines like a lathe operator or a milling machine operator and the handling of hazardous substances is subject to high regulatory requirements. These are bad prerequisites for successful sharing. In addition, as an SME, we have to be very careful that our investments pay off: a procured investment good that	As I said, I don't see much potential here for our company. What could be possible in the future is that we increasingly borrow resources instead of procuring them ourselves or procuring a service in a contract relationship. The only question for me here is the relationship between cost and benefit. A possible interesting sharing area, however, would be personnel. Of course, it would be interesting not to have to lay off people in bad times so that they are available again when the	As mentioned, I do not see any significant sharing of hardware for Company R. In personnel matters, however, there is. In order for this sharing to be successful, I believe it must be set up for the long term. However, we do not have any such sharing going on at the moment and therefore cannot draw on experience.

Table 16 written feedbacks from SMEs on the transformation of their business model
(continued)

	Hypothesis 1 – sharing transforms the business model	Hypothesis 2 – the business model evolves in the domains of partnerships, value proposition und cost	Hypothesis 3 – the changes persist for the long-term beyond B2B sharing transactions
	is then not used would be a big "fail".	economy picks up and there is no need to go through a recruitment and training process. Of course, it would be just as interesting to be able to absorb peaks in demand with hard-working staff and thus be able to do without additional staff, temporary employees or overtime.	
DM, Company C	In our specific case, no significant or noteworthy change. On the one hand, we were able to offer Company S knowledge management and technology transfer as a sharing provider, and on the other hand, we were able to arrange contact with	If so, then in the area of value propositions - here we were able to achieve a better external reputation and signal competence. As there was a "sporadic/individual" sharing case and no systematic/continuous sharing case, the cost topic and its	no changes at the moment

Table 16 written feedbacks from SMEs on the transformation of their business model
(continued)

	Hypothesis 1 – sharing transforms the business model	Hypothesis 2 – the business model evolves in the domains of partnerships, value proposition und cost	Hypothesis 3 – the changes persist for the long-term beyond B2B sharing transactions
	a supplier, because we as Company C do not cover this area of battery business ourselves, which would be necessary for the specific project at Company S. As a sharing recipient, we have received feedback with partial recommendations for action regarding our webshop presence. Our marketing department has taken note of this and has been able to optimise individual points. There are still open issues.	assessment is difficult to apply. In the area of partnerships, we were able to recommend a potential partner/supplier for Company S's project. Since Company S has not yet taken any further steps, a final assessment is not yet possible. However, Company C itself would only be the mediating party here.	

Table 16 written feedbacks from SMEs on the transformation of their business model (continued)

	Hypothesis 1 – sharing transforms the business model	Hypothesis 2 – the business model evolves in the domains of partnerships, value proposition und cost	Hypothesis 3 – the changes persist for the long-term beyond B2B sharing transactions
DS, Company P	The business model does not change through sharing. We also do not assume that our business model could change through much more sharing.	The greatest benefit from sharing is still the mutual loan of skilled workers and know-how with the SMEs in our area.	Before we bring in temporary staff, we first check the possibility of hiring out employees from partner companies. Before buying a plant or a tool, we first check the possibility of a loan with various companies.
MG, Company S	The business model will not change for the time being. So far, these were the first sharing attempts at a low level. For longer sharing commitments with a stronger impact on costs, the business model will have to change or be adapted.	Partnership in any case, through the project alone, exciting partnerships could be made outside the sector. I see a big plus in the openness of the companies to point out any deficiencies in the organisation and to introduce them through external sharing. I think the main feature is	If there is openness, interest, transparency and mutual added value, the changes in the business model must remain long-term.

Table 16 written feedbacks from SMEs on the transformation of their business model
(continued)

	Hypothesis 1 – sharing transforms the business model	Hypothesis 2 – the business model evolves in the domains of partnerships, value proposition und cost	Hypothesis 3 – the changes persist for the long-term beyond B2B sharing transactions
		the sharing of resources. We already do this in part at Company S. The potential with sharing in the existing shortage of skilled workers is extremely large and the resulting changes in the business model have a strong influence on partnership, value proposition and cost!	

Appendix J Validation of Research Results

The Shift from Owning to Sharing

Workshop zur Validierung
Forschungsmodell

Wirtschaft
1. Januar 2023

FH Zentralschweiz

THE **SHARING ECONOMY**

THE **END OF EMPLOYMENT** AND THE **RISE OF CROWD-BASED CAPITALISM**
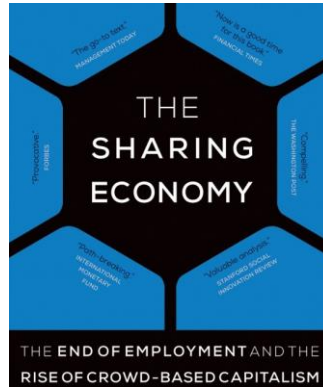
Transformation des Geschäftsmodells
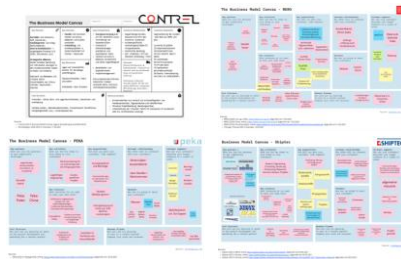
B2B Sharing wirkt sich auf 3 Elemente des Geschäftsmodells aus:

- **Partnerships**: neue Partnerschaften auch ausserhalb der eigenen Branche / des bisherigen Wertschöpfungsnetzwerks (Lieferanten, Kunden, Dienstleister, usw.)

- **Value Proposition**: das eigene Angebot am Markt erweitert sich
  - eigene Ressourcen anderen anbieten (ausserhalb des Kerngeschäfts).
  - Zugriff auf sonst nicht verfügbare Ressourcen → Erweiterung des Angebots am Markt

- **Cost**:
  - Kosten von bestehenden Ressourcen reduzieren, weil freie Kapazitäten einem Sharingpartner gegen eine Gegenleistung angeboten werden.
  - Eigener Ressourcenbedarf zu geringeren Kosten gedeckt, wenn selten genutzte Ressourcen über Sharing beschafft statt gekauft oder gemietet werden.

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Figure 22 selected slides from validation workshop for research results (13 September 2022)

Validation Research Methodology Workshop Transcript

Interlocutor	DS, Head of Production Company P
	DM, Business Development Engineer Company C
	TS, CEO Company T
	Prof. Dr Toni Wäfler, Researcher and Project Manager University of Applied Sciences Northwestern Switzerland, Institute for Applied Psychology
	Karina von dem Berge, Research Associate, Lucerne University of Applied Sciences and Arts Business Administration
Interviewer	Sebastian Huber (SH)
Place, date	13.09.2022, online (Zoom)
Language	Swiss German
Transcription	Sebastian Huber, 01.01.2023
Declaration of consent	Within the framework of the Innosuisse project

(Presentation of the results by means of PowerPoint).

1 *Sebastian Huber (SH): Now I would like to release the microphone and listen. To do*
2 *this, I'll leave this graphic (slide 10) open for the time being and then scroll back and*
3 *forth. Do you intuitively find yourselves here? Are there any contradictions or*
4 *ambiguities from your point of view? Or questions that you would like to raise? For me*
5 *it would be exciting to know, does this fit with practical experience? Was this evident*
6 *in the sharing projects we did? Does it intuitively make sense to you?*
7
8 **TS (TS):** Regarding the project we had before this joint project, resource sharing, which
9 we had already done: the process was actually the same as described here. So I can
10 really confirm 1:1. What was natural, of course, is that when a sharing was completed,
11 we also became repeat offenders, which was also the goal. And it also works really well
12 that (the responsibility) is then handed over to the functions that are directly concerned.
13 It actually works well that I personally no longer have anything to do with it. It became

14   a matter of course. After the first productions, it worked in such a way that I was able

15   to hand it over. And it continues to work that way.

16

17   *SH: So that I understand this correctly: You're talking about the last phase here, which*

18   *is also the step of delegation to the operational business. And then you are no longer*

19   *needed as a manager at this point.*

20

21   **TS:** Yes, exactly, right. The goal is also that the sharing is repeated. If it's a one-time

22   thing, then you don't get much profit from each other.

23

24   *SH: Thank you very much for your assessment. Shall we keep the order and ask Dennis*

25   *next?*

26

27   **DS (DS):** Yes, I agree that sharing projects, like the one that went so well, need this. It

28   still took a certain amount of time, in that sense. You had a project, you had to make it

29   work, you had to delegate it to the right place. You also have to get to know each other,

30   etc. There is a certain amount of effort behind it. Now I have a sharing, which we are

31   still doing, which is now also a topic we are working on again: Employees. This is

32   something that is usually one-off. You do it once for a certain phase, you lend out an

33   employee or borrow an external one. And those are the short-term tools. I would still

34   say that this is deeply embedded in our system. It is also in the organisation that the

35   first thing we do when there is too little or too much to do somewhere in a department

36   is to ask our partners in the area directly. That is still the most important point: you have

37   to anchor it in the right place (in the organisation). What we personally have not done

38   yet.

39

40   *SH: If I understand you correctly, you have now also addressed the third phase, the*

41   *question of how this comes into the operational business. And if I understand you*

42   *correctly, you have succeeded in getting the staff to react when the organisation*

43   *recognises a need or overcapacity somewhere, so that the sharing idea is anchored*

44   *operationally in the organisation to such an extent that it works. However, this is not*

45   *yet the case to the same extent with other issues.*

46

47 **DS:** yes exactly. When the topic of human resources comes up, then you actually

48 already know exactly, then the human resources department knows what to do. That

49 actually happens automatically. You have to mention it briefly and then it happens. It's

50 simple and efficient. With a new sharing, it is sometimes connected with a lot of effort,

51 or it can be connected with a lot of effort.

52

53 *SH: By that you mean the first phase here, the first phase of the tool, to find the partner*

54 *and the resource, to find the deal, you need you again as a leader to find the sharing,*

55 *right?*

56

57 **DS:** Yes, exactly. And for a one-time sharing, where we somehow save a few hundred

58 francs, you don't know if it's worth it. Does it come about at all? Whereas if you go to

59 an expert (professional provider), a dealer or something, you know straight away that

60 it will work. The providers take on a certain project manager or consultant role, where

61 you immediately know, OK, this will work. Those are the considerations. Another

62 interesting input I might have is from a colleague from another company. They already

63 wanted to do this, but it was more in the building industry, where they said: the big

64 building companies would never lend this to the small (companies), because they are

65 actually competing with each other. This is an addition.

66

67 *SH: Here it is a question of choosing the right partner: is it rather the small*

68 *(companies) that help each other, or does it also work with different company sizes.*

69 *This is also a topic that we will encounter in the follow-up project in the health sector.*

70 *Again, the question is whether I am a large cantonal hospital or a regionally anchored*

71 *institution. Am I interested in the topic at all? Thank you, wonderful. Deny, may I give*

72 *you the floor?*

73

74

75 **DM (DM):** You may, Sebastian, with pleasure. Many thoughts are running through my

76 head right now, very exciting topics. I think it starts at the leadership level, so that there

77 is a certain readiness and a will to change, so that this can happen at all and be good.

78   So. I think that's the crux of the matter. Then, for me, it has to do with transformation,

79   evolutionary. It needs a cultural change. I think for that to be successful, people would

80   also have to be shone like a light from the top down. You also have to integrate people

81   so that it continues at all, so that it doesn't get lost. That's about my building feeling,

82   somewhere. The topic of health and medicine is very exciting. It's nice that you point

83   that out. I myself am a medical technology engineer and am involved in such projects

84   every day with my main clients. Maybe we need to discuss this in a different setting.

85   I'm happy to answer questions, because there are certainly still one or two hurdles where

86   the will is there, but where the corset of regulations and laws somehow makes it very

87   difficult to implement in practice. I can't think of any more at the moment. The topic of

88   knowledge management or transfer is certainly still with us. So it's about people. That

89   is certainly a topic that would be exciting to look at in more detail. At the moment, I

90   am experiencing situations in our environment where development offices are being

91   bought up by some manufacturer as a subsidiary. And again a third party is brought in

92   as a trio. And suddenly a company has become, how shall I put it, a ball of wool. And

93   somehow a form of sharing is happening here - the exchange of knowledge and people.

94   And I am experiencing this in many places at the moment, including in the medical

95   field. In connection with the Medical Device Regulation, it is actually the case that

96   many companies are resigning, i.e. they are filing for bankruptcy or are being bought

97   out by a superordinate company because they cannot cope with it on their own. At the

98   moment I can't think of anything more to say.

99

100   *SH: Thank you very much. If I have understood it correctly and can simply place it in*

101   *the concept: then you are actually saying that it needs an ongoing investment for the*

102   *cultural change. So with a one-time identification of the partner and the sharing*

103   *resource it is not done yet, but it needs continuous management attention to ensure the*

104   *culture change and the transfer into the organisation?*

105

106   **DM:** I think it needs two approaches: one is that it is strategically initiated. And the

107   other is when there is a certain pressure of suffering or a need. But one leads to the

108   other, inevitably. That's what I think, yes.

109

SH: super, thank you very much. Karina had already seen these thoughts (presentation), so I would let Toni have her say. You hadn't seen it in advance and I'm curious to see how you assess it with your view, from your conceptual perspective.

Toni Wäfler (TW): I find that understandable. With this slide (no. 10), I thought about it earlier, but I didn't think about it as long as you did, but spontaneously: I have some trouble with these red arrows. For me, the model on the right is basically an operational process of the individual sharing project. And for me, the one on the left would be more about how to set up the organisation, structures, cultures and resources so that the one on the right works. I don't think I would assign the individual steps on the left to the individual steps on the right. Rather, the left says strategically "we want that and we promote that" and then we build the corresponding structures and processes. After that, they run operationally. This does not exclude having individual partners for a single sharing and other sharing partners as strategic partners. But I don't think I would do the red arrows. But both models are comprehensible to me.

SH: OK, great. You just say there is no and there doesn't need to be a direct causal link between the toolbox and the transformation path.

TW: no, exactly, it doesn't need that at all. Left for me is more how do you build the right. Rather than deciding that you want it on the right, and how do you build it up. And once it's there, then it can run operationally, as my colleague has already explained. Then you, as the management, don't have much to do with it once it's up and running. Unless you want to change it, develop it further.

SH: great, thank you. Karina, any other comments from your point of view?

Karina von dem Berge (KvB): We have already talked about this before. When you presented it again, I had the feeling that phase II and III (it goes in a similar direction to what has already been said) are actually both operative. So phase II and III in the right model. What I think makes it limp the most, with the red arrows, is just the connection (which you mentioned yourself) that phase III on the left and phase III on

142   the right don't quite fit together. The measurement of success is the completion of the

143   sharing and after that it's just post-sharing when it's completely finished, how do I bring

144   it into the organisation. I asked myself whether there might be four phases. One could

145   rather speak of four phases, now to the right in our process. Phase IV is then needed for

146   dissemination within the organisation.

147

148   *SH: ... the operationalisation of it, so to speak. Super, great. I haven't prepared any*

149   *more at this point and would just like to thank you again very much for your insights*

150   *and inputs and the various assessments of this proposal. These confirm in many*

151   *respects and now also specify once again how the two approaches, the toolbox and the*

152   *transformation model, can coexist.*

153

154   [end of recording]
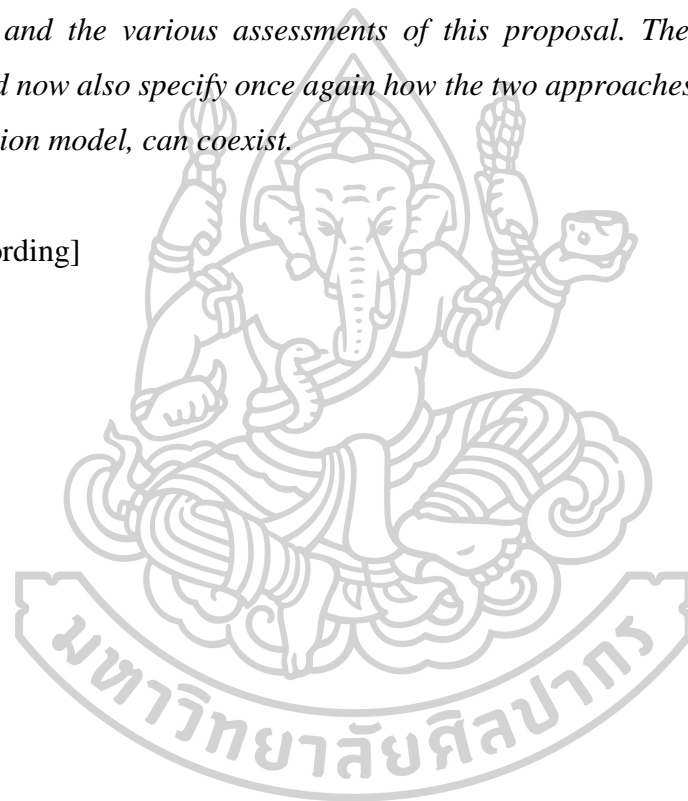
Appendix K Research Project Presentation to Industry Participants

Delivered in verbatim at a meeting of the research initiative on February 4th, 2021

Konkretisierung Forschungsdesign

Business Model built on Ownership — Transition in Business Model — Sharing integrated in Business Model

time

organisation
systems
people

Business Model Canvas — sharing transactions — managerial action

Folie 5, 17.02.2021

Umsetzung AP 3 im Projekt – konkrete Arbeitsschritte und Anfragen

a. **Veränderung im Geschäftsmodell**: das Forschungsteam vergleicht mittels Business Model Canvas das Geschäftsmodell für jedes Unternehmen vor und nach den Sharing Projekten

- **Anfrage 1**: Zusenden von verfügbarem, aktuellem Material (z.B. Geschäftsberichte, Strategiedokumente)
- **Anfrage 2**: Termin im Februar / März zur Validierung des heutigen BMC
- **Anfrage 3**: Termin zur Überprüfung des BMC bei Projektende (September / Oktober)

b. **Management-Massnahmen** zur Vorbereitung, Durchführung, Nachbereitung von Sharing Transaktionen

- Strukturierte Datensammlung zu jeder Sharing Transaktion
- **Anfrage 4**: Einbezug Forschungsteam bei allen Interaktionen zwischen Sharing Partnern vor, während und nach jedem Sharing (mit Zeitstempel)
- **Anfrage 5**: strukturiertes Interview je Partner nach jeder Transaktion

c. **Transformations-Roadmap** (Zeitleiste): Verortung der bereits gesammelten Daten je Unternehmen auf einer Zeitleiste mit erster Transaktion t=0.

Folie 6, 17.02.2021

Appendix L Overview of Publications from Research Initiative

Huber, S., Pooripakdee, S., Schreier C. (2023). Understanding Managerial Action in Business Model Transformation of Small and Medium-Sized Enterprises. ABAC Journal, 43(3), 1-16, https://doi.org/10.59865/abacj.2023.42

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VITA

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INSTITUTIONS ATTENDED	2007 Hamburg University (Hamburg, Germany) and Fudan University (Shanghai, China)
	Degree: Master & MBA International Business and Economics – China Focus
	2004 Berufsakademie Lörrach (Germany), Fachhochschule Beider Basel (Switzerland), Open University (London, UK), Université Haute-Alsace (Comar, France)
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PUBLICATION	- Huber, S., Pooripakdee, S., Schreier C. (2023). Understanding Managerial Action in Business Model Transformation of Small and Medium-Sized Enterprises. ABAC Journal, 43(3), 1-16, https://doi.org/10.59865/abacj.2023.42
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AWARD RECEIVED   October 25, 2007: Montblanc Excellence Award for Outstanding Student Achievement

July 14, 2007: Most Innovative Team Award at Youth Innovation Competition on Global Governance by UNDP and Fudan University